

**FIFTH FIVE-YEAR REVIEW REPORT FOR  
AMERICAN CREOSOTE WORKS, INC. (WINNFIELD PLANT) SUPERFUND SITE  
WINN PARISH, LOUISIANA**



**March 16, 2020**



**1970**



**2019**

**Prepared by**

**U.S. Environmental Protection Agency  
Region 6  
Dallas, Texas**

**FIFTH FIVE-YEAR REVIEW REPORT**  
**AMERICAN CREOSOTE WORKS, INC. (WINNFIELD PLANT) SUPERFUND SITE**  
**EPA ID#: LAD000239814**  
**WINN PARISH, LA**

This memorandum documents the U.S. Environmental Protection Agency's performance, determinations and approval of the American Creosote Works, Inc. (Winnfield Plant) Superfund site (Site) fifth five-year review under Section 121 (c) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S. Code Section 9621 (c), as provided in the attached fifth Five-Year Review Report.

**Summary of the Fifth Five-Year Review Report**

This Five-Year Review summarizes the current status of the remedy at the American Creosote Works, Inc. (Winnfield Plant) Superfund site. From 1901 to the mid-1980s, property owners operated a wood treating facility at the Site. Spills and problems with the treatment process resulted in the contamination of soil and groundwater. EPA selected a remedy to address site contamination in a 1993 Record of Decision (ROD). Several years of annual reports documented the progress of the remedy with respect to short term and long term goals as described in the 1993 ROD. Despite significant remediation accomplishments, immobile and mobile non-aqueous phase liquid (NAPL) present in the vadose zone and shallow aquifer were expected to prevent achievement, within a reasonable timeframe, of the soil and groundwater remedial action objectives (RAOs) established in the 1993 ROD. EPA selected a new remedy for the Site in the 2016 ROD Amendment. The new remedy primarily includes removing or treating the immobile and mobile NAPL present in the vadose zone and shallow aquifer that is a long-term constant source of contamination. A decision concerning any necessary remedial action for the groundwater will be made in the future after the effectiveness of the revised remedy, when implemented, can be determined.

**Environmental Indicators**

Human Exposure Status: Human exposure under control.

Contaminated Groundwater Status: Groundwater migration under control.

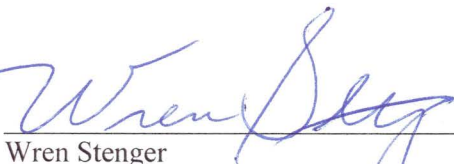
Site-Wide Ready for Reuse: No

**Actions Needed**

The following actions must be taken for the remedy to be protective: None

**Determination**

I have determined that the remedy for the American Creosote Works, Inc. (Winnfield Plant) Superfund site is protective in the short term. This Five-Year Review Report specifies the actions that need to be taken for the remedy to remain protective over the long term.

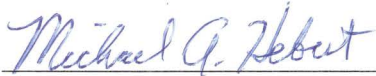


Wren Stenger  
Director, Superfund and Emergency Management Division  
U.S. Environmental Protection Agency, Region 6

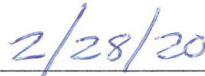
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CONCURRENCES

FIFTH FIVE-YEAR REVIEW REPORT  
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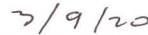
Michael Hebert  
Remedial Project Manager



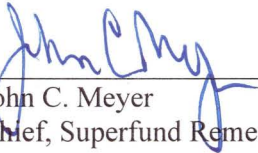
Date



Blake Atkins  
Chief, Louisiana/New Mexico/Oklahoma Section



Date



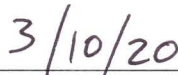
John C. Meyer  
Chief, Superfund Remedial Branch



Date



Jake Piehl  
Attorney, Office of Regional Counsel



Date



I-Jung Chiang  
Chief, Superfund Branch, Office of Regional Counsel



Date

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**ISSUES/RECOMMENDATIONS**  
**FIFTH FIVE-YEAR REVIEW REPORT**  
**AMERICAN CREOSOTE WORKS, INC. (WINNFIELD PLANT) SUPERFUND SITE**  
**EPA ID#: LAD000239814**  
**WINN PARISH, LA**

| Issues/Recommendations  |
|---|
| <b>OU(s) without Issues/Recommendations Identified in the FYR:</b>    |
| <i>None</i>   |
| <b>Issues and Recommendations Identified in the Five-Year Review:</b> |

| <b>OU(s): 01</b>                         | <b>Issue Category: Remedy Performance</b>  |                              |                        |                       |
|--|--|------------------------------|------------------------|-----------------------|
|  | <b>Issue:</b> The remedy selected in the 1993 ROD will not achieve RAOs in a reasonable timeframe. |                              |                        |                       |
|  | <b>Recommendation:</b> Implement remedy selected in 2016 ROD amendment to ensure RAOs can be met.  |                              |                        |                       |
| <b>Affect Current<br/>Protectiveness</b> | <b>Affect Future<br/>Protectiveness</b>  | <b>Party<br/>Responsible</b> | <b>Oversight Party</b> | <b>Milestone Date</b> |
| No                                       | Yes  | EPA                          | EPA                    | 9/30/2024             |

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## LIST OF ABBREVIATIONS AND ACRONYMS

|        |   |
|--------|---|
| ARAR   | Applicable or Relevant and Appropriate Requirement                    |
| AWQC   | Ambient Water Quality Criteria  |
| BaP    | Benzo(a)pyrene  |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| COC    | Contaminant of Concern  |
| DNAPL  | Dense Non-Aqueous Phase Liquid  |
| DU     | Decision Unit   |
| ELCR   | Excess Lifetime Cancer Risk   |
| EPA    | United States Environmental Protection Agency                         |
| FYR    | Five-Year Review  |
| HPAH   | High Molecular Weight Polycyclic Aromatic Hydrocarbons                |
| HQ     | Hazard Quotient   |
| IC     | Institutional Control   |
| ISS    | In-Situ Solidification/Stabilization                                  |
| LDEQ   | Louisiana Department of Environmental Quality                         |
| LNAPL  | Light Non-Aqueous Phase Liquid  |
| MCL    | Maximum Contaminant Level   |
| µg/L   | Microgram Per Liter   |
| µg/kg  | Microgram Per Kilogram  |
| NAPL   | Non-Aqueous Phase Liquid  |
| NCP    | National Contingency Plan   |
| NPL    | National Priorities List  |
| O&M    | Operation and Maintenance   |
| OU     | Operable Unit   |
| PAH    | Polycyclic Aromatic Hydrocarbon                                       |
| PCP    | Pentachlorophenol   |
| PLTS   | Process Liquid Treatment System                                       |
| PRG    | Preliminary Remediation Goal  |
| RAO    | Remedial Action Objective   |
| RI     | Remedial Investigation  |
| FS     | Feasibility Study   |
| ROD    | Record of Decision  |
| RPM    | Remedial Project Manager  |
| RSL    | Regional Screening Level  |
| TCDD   | Tetrachlorodibenzodioxin  |
| TCEQ   | Texas Commission on Environmental Quality                             |
| TEQ    | Toxicity Equivalence  |
| TI     | Technical Impracticability  |
| TRRP   | Texas Risk Reduction Program  |
| UAO    | Unilateral Administrative Order                                       |
| USACE  | United States Army Corps of Engineers                                 |
| UU/UE  | Unlimited Use/Unrestricted Exposure                                   |
| VOC    | Volatile Organic Compound   |

# **I. INTRODUCTION**

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP) (40 Code of Federal Regulations Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fifth FYR for the American Creosote Works, Inc. (Winnfield Plant) Superfund site (the Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of one operable unit (OU) at the Site, which this FYR addresses. OU1 addresses the soil and groundwater remedy.

EPA remedial project manager (RPM) Mike Hebert led the FYR. Participants included Keith Horn, Louisiana Department of Environmental Quality (LDEQ) and Kirby Webster and Kelly MacDonald, EPA FYR contractor. The review began on 8/30/2019.

## **Site Background**

The 62-acre Site is located at 1006 Front Street in the City of Winnfield, in Winn Parish, Louisiana. From 1901 to the mid-1980s, property owners operated a wood treating facility at the Site. Spills and problems with the treatment process resulted in the contamination of soil and groundwater. Access to the northern portion of the Site is restricted by a tall fence with locking gates and is monitored by electronic surveillance. The southern portion of the Site is also secured by a locking fence and includes structures remaining from the former soil remediation incinerator. Currently, the local fire department is using the southern portion of the Site for training exercises. Land uses nearby include agricultural, residential and recreational uses. The closest residence is 200 feet from the Site. Residences near the Site are connected to the City of Winnfield's public water system. Refer to Appendix A for additional resources and to Appendix B for the Site's chronology of events.

The Site's topography slopes from south to north for Southern, Process Area, Tar Mat and Non-Process Area Decision Units (DUs). Surface water at the Site drains into Creosote Branch Creek, which runs near the Site's northern boundary and near the Site's western boundary. A shallow aquifer is present at the Site within the Prairie Terrace deposits. Under natural (non-pumping) conditions, groundwater within the shallow aquifer flows radially outward from the Process Area DU to the west and north, toward Creosote Branch Creek. Groundwater contamination at the Site is primarily present within the shallow aquifer. It is contained by the groundwater pump and treat system. A deeper aquifer occurs at the Site within the Cockfield Formation at depths of 55 to 65 feet below ground surface. Groundwater in the deeper aquifer flows toward the north-northeast, and an upward vertical gradient exists between the deep and shallow aquifers. Potable water in Winn Parish is obtained from the Sparta Aquifer, which occurs below the Cockfield Formation at depths ranging from 180 to 300 feet below ground surface.

The State of Louisiana Stream Control Commission first investigated the Site in 1966. Investigations discovered high levels of phenols and biochemical oxygen demand in site wastewater discharges. The Site's owner declared bankruptcy in 1977, and the City of Winnfield involuntarily acquired the property due to unpaid back taxes. Stallworth Timber Company later purchased the site property. By 1981, smaller-scale wood treating operations had resumed on site. LDEQ conducted several inspections at the Site between 1982 and 1986. These inspections

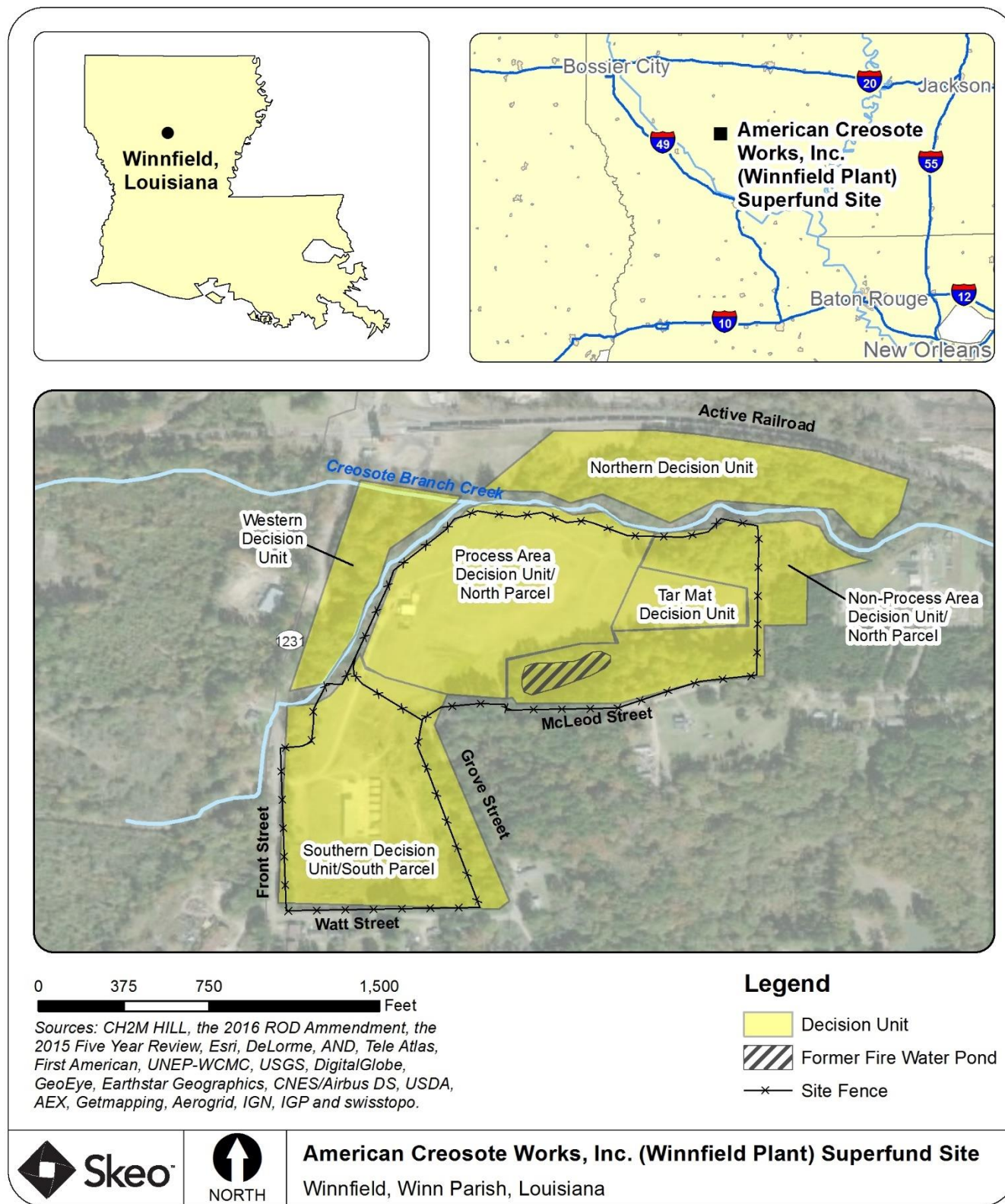
noted spillage of creosote, abandoned pits and containers and off-site contamination. LDEQ discovered the Site abandoned in June 1985.

LDEQ referred the Site to EPA Region 6 in March 1987, requesting that the Agency take action at the Site. EPA conducted several site investigations in 1987 and 1988. EPA proposed the Site for listing on the Superfund program's National Priorities List (NPL) in February 1992 and finalized the Site on the NPL in October 1992.

#### **FIVE-YEAR REVIEW SUMMARY FORM**

| SITE IDENTIFICATION  |   |                             |
|--|---|-----------------------------|
| Site Name: American Creosote Works, Inc. (Winnfield Plant)             |   |                             |
| EPA ID: LAD000239814   |   |                             |
| Region: 6  | State: LA   | City/County: Winnfield/Winn |
| SITE STATUS  |   |                             |
| NPL Status: Final  |   |                             |
| Multiple OUs?<br>No  | Has the Site achieved construction completion?<br>Yes |                             |
| REVIEW STATUS  |   |                             |
| Lead agency: EPA   |   |                             |
| Author name: Mike Hebert, with additional support provided by Skeo     |   |                             |
| Author affiliation: EPA Region 6                                       |   |                             |
| Review period: 8/30/2019- 5/15/2020                                    |   |                             |
| Date of site inspection: 11/14/2019                                    |   |                             |
| Type of review: Statutory  |   |                             |
| Review number: 5   |   |                             |
| Triggering action date: 5/15/2015                                      |   |                             |
| Due date ( <i>five years after triggering action date</i> ): 5/15/2020 |   |                             |

**Figure 1: Site Vicinity Map**



*Disclaimer:* This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

## II. RESPONSE ACTION SUMMARY

### **Basis for Taking Action**

EPA conducted a remedial investigation and feasibility study (RI/FS) at the Site between December 1991 and April 1993. The investigation determined that the primary threats that the Site posed to public health were direct contact or ingestion of contaminated site soils and ingestion of contaminated site groundwater by potential future residents. The RI/FS identified polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), dioxins and pentachlorophenol (PCP) as contaminants of concern (COCs) in soil and PAHs, phenols and benzene as COCs in groundwater.

Surface water and sediment in Creosote Branch Creek were also impacted by site activities. The RI determined that sediment and surface water contamination in Creosote Branch Creek did not pose a threat to human health. However, toxicity testing during the RI demonstrated that the sediments do pose a threat to the environment. EPA determined that removal of the contaminated sediments in Creosote Branch Creek by excavation could adversely affect nearby wetlands. In addition, EPA determined that disturbance of the sediments would pose a greater environmental threat than leaving them in place.

### **Response Actions**

In May 1988, EPA issued a Unilateral Administrative Order (UAO) to Stallworth Timber Company directing them to fence the Site and post warning signs around the most contaminated areas. The company completed this task in July 1988.

EPA conducted the first emergency removal action at the Site between May 31 and June 5, 1988. The action involved draining storage tanks that were in imminent danger of rupturing and constructing a berm around the process area to contain and stabilize heavily contaminated soils. In February 1989, EPA issued another UAO to Stallworth Timber Company for a removal action to address the immediate threats posed by the Site. The company declined to take action. From March 17 to August 21, 1989, EPA conducted another emergency removal action at the Site. Activities included consolidation of wood treating liquids into a single tank; solidification of liquid and surface sludge; and consolidation of the stabilized materials into an existing compound (now referred to as the waste cell). Additional removal action activities included dismantling and decontaminating site buildings and process equipment. EPA also constructed an east-west drainage ditch to redirect surface water runoff from the southern portion of the Site away from the heavily contaminated northern portion; backfilled a large north-south drainage ditch running through the most contaminated areas; and treated and discharged contaminated water from holding ponds, lagoons, containment basins and storage tanks to Creosote Branch Creek.

For cleanup, the Site was divided into DUs (Figure 1), as follows:

- Southern DU: also identified as the south parcel; was used to store untreated wood.
- Process Area DU: also identified as the north parcel; where historical wood treatment operations were conducted. Four impoundments where liquid wood-treating wastes were disposed of were also located here.
- Western DU: contained administration offices. A bridge across the western branch of Creosote Branch Creek provided access to the former process area in the Process Area DU where wood treatment operations were conducted.
- Northern DU: Treated wood was transported by rail from the former process area to this area for drying and staging prior to shipment.
- Tar Mat DU: contained a majority of the 25,000 cubic yards of tar-sludge-like material that was excavated and incinerated between 1996 and 1998.
- Non-Process Area DU: lies to the east and southeast of the former process area and contains a former fire water pond.

- Creek DU: includes the western, far west, and main branches of Creosote Branch Creek, which extends east (downstream) of the Process Area DU.

Currently, the process area decision unit/north parcel of the Site has only remedy-related structures, including an active groundwater treatment system, a support building, two waste burial areas (the tar mat and waste cell) and a fire water pond.

EPA selected a final remedy for the Site in the 1993 Record of Decision (ROD); it was subsequently replaced in the 2016 ROD Amendment.

Remedial action objectives (RAOs) described in the 1993 ROD were:

- For shallow groundwater, prevent the exposure of potential receptors to on-site contaminated groundwater in amounts above human health-based standards and restore groundwater quality.
- Remove the threat of potential exposure to future residents via direct contact with contaminated surface soils, tar mat materials and non-aqueous phase liquids (NAPLs).
- Reduce the potential for site contaminants to migrate into surface waters or groundwater.

Major components of the 1993 ROD remedy included:

- Pumping, separating and treating light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL) by on- or off-site incineration; on-site treatment of contaminated groundwater; and either discharge of treated groundwater to Creosote Branch Creek or the use of the effluent in the in-place biological treatment system.
- On-site incineration of highly contaminated tars and sludges located in the tar mat area. Returning the incinerated ash to the excavated areas; and grading, capping and revegetation of the backfilled areas.
- Injecting nutrients, microbes and oxygen into the subsurface via wells to enhance in-place biological treatment and attain stated soil remediation goals for 250,000 cubic yards of contaminated soil and the use of the groundwater extraction system to hydraulically control off-site migration of contaminated groundwater and allow for the potential recirculation of bacteria for efficient treatment.
- Capping of surface contaminated soils; decontamination and on-site landfilling of process equipment and scrap; and grading of the capped areas.

The 1993 ROD identified soil and groundwater cleanup goals based on future residential use shown in Table 1.

**Table 1: 1993 ROD COC Cleanup Goals**

| COC   | Groundwater Cleanup Goal (µg/L) | Soil Cleanup Goal (µg/kg)   |
|---|---------------------------------|---|
| Benzene   | 5                               | NA  |
| Benzo(a)pyrene (BaP)  | 0.2                             | NA  |
| Carcinogenic PAHs expressed as BaP equivalents  | NA                              | 3,000   |
| PCP   | NA                              | 50,000  |
| 2,3,7,8- Tetrachlorodibenzodioxin (TCDD) equivalents  | NA                              | 1-10 (subsurface soil covered by 12 inches of clean soil)<br>1 (treated soil) |
| <p><i>Notes:</i><br/> NA = the 1993 ROD did not identify a cleanup goal in this medium for this contaminant.<br/> µg/L = microgram per liter<br/> µg/kg = microgram per kilogram<br/> Source: 1993 ROD, section 6.5 Remediation Goals</p> |                                 |   |

Due to remedy performance concerns involving the long-term effectiveness of the Site's NAPL recovery and in-place biological treatment systems, EPA initiated an additional feasibility study in September 2010 and completed a new RI in April 2014. The 2014 Remedial Investigation Report verified that the Site's treatment systems are not effectively addressing site contamination and also discovered the presence of site-related contamination outside of the Site's previously established boundary. EPA identified a new remedy for the Site in the 2016 ROD Amendment. The new remedy primarily includes removing or treating the immobile and mobile NAPL present in the vadose zone and shallow aquifer that is a long-term constant source of contamination. A decision concerning any necessary remedial action for the groundwater will be made in the future after the effectiveness of the revised remedy can be determined.

The 2016 ROD Amendment described the following RAOs:

- Prevent industrial worker/construction worker exposure to surface/subsurface soil contaminants of concern exceeding health-based cleanup levels in the Process Area (new RAO based upon revised RI/FS)
- Prevent terrestrial ecological receptor communities' exposure to soil COCs (PAHs) above ecological risk-based cleanup levels in the Northern DU (new RAO based upon Revised RI/FS)
- Minimize aquatic and secondary contact recreational receptors from exposure to the COCs present in groundwater discharging to Creosote Branch at concentrations exceeding health-based and ecological-based cleanup levels (revised 1993 ROD RAO based on revised RI/FS)
- Minimize further migration of COCs from source materials to groundwater (retained RAO from 1993 ROD)
- For shallow groundwater, prevent the exposure of potential receptors to on-site contaminated groundwater in amounts above human health-based standards until a decision concerning any necessary remedial action for the groundwater is made in the future (new RAO based on revised RI/FS).

The major components of the remedy selected in the 2016 ROD Amendment include:

- Excavation and off-site disposal of contaminated soils located in the eastern and northern portions of the Site.
- Excavation and off-site disposal of contaminated areas along the northern and western fence line near Creosote Branch Creek. The creek excavation areas will be replaced with clean fill and constructed to maintain creek bank integrity.
- In-situ solidification/stabilization (ISS) of immobile and mobile NAPL located in the soils and groundwater in the central portion of the Site.
- Abandonment and decommissioning of the groundwater extraction/injection wellfield and treatment system associated with the current remedy.
- Placement of a soil cover to protect the ISS treatment area and to prevent direct contact with treatment residuals.
- Institutional Controls (ICs) – the reasonably anticipated future land use is commercial/industrial; therefore, ICs will be placed to aid in the protection from the waste left on site.
- The groundwater (including under the waste) at the Site will be monitored and a decision concerning any necessary remedial action for the groundwater will be made in the future after the effectiveness of the remedy can be determined.

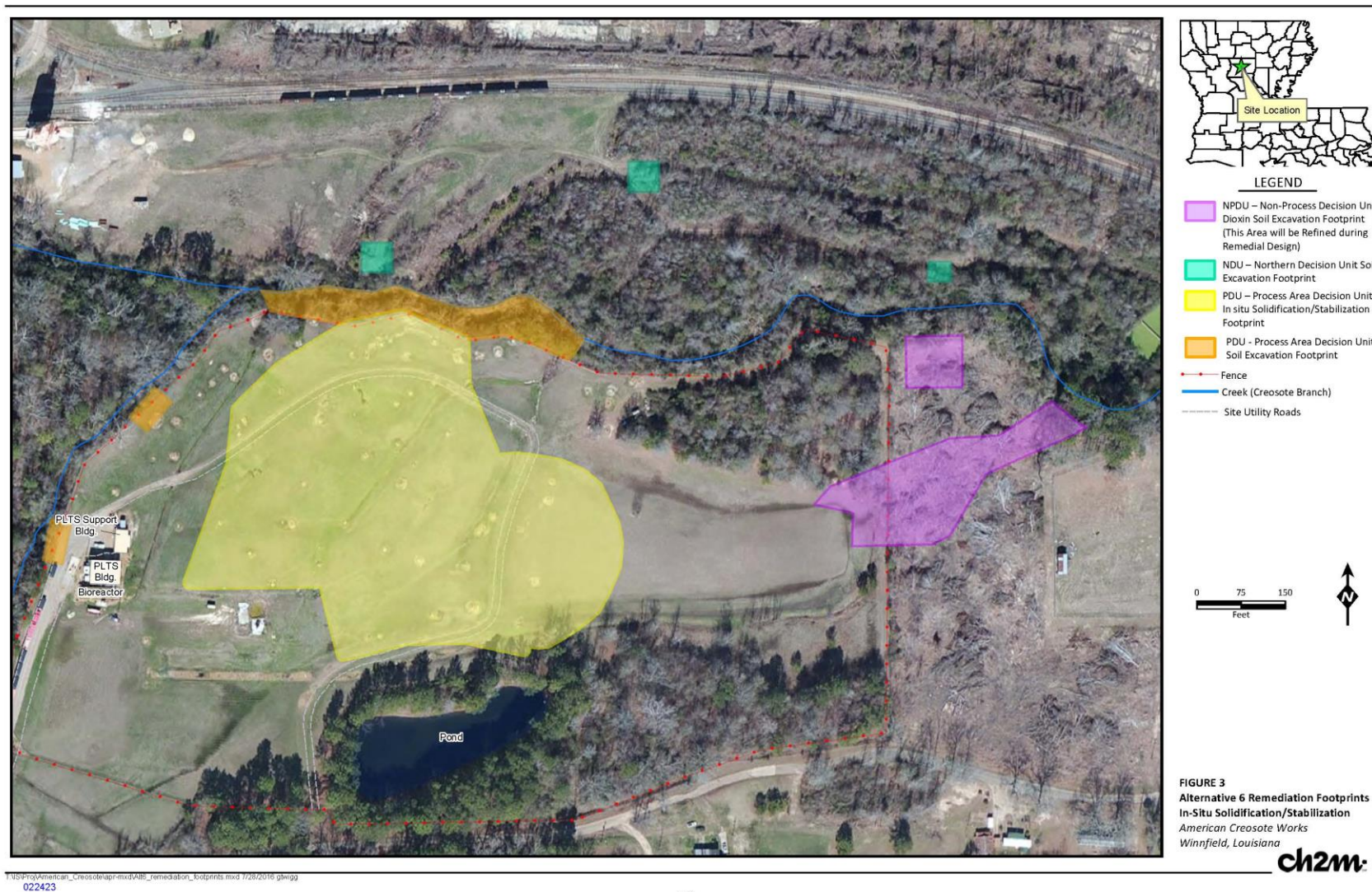
The 2016 ROD Amendment identified cleanup levels for soils and monitoring levels that will be utilized in Creosote Branch Creek to determine if there are any continuing impacts to the creek from groundwater to surface water interaction. The immobile and mobile NAPL at the Site is considered a principal threat waste and, therefore, there are no cleanup levels for the NAPL. The NAPL will be addressed by implementation of the ISS, which will eliminate/reduce its mobility. Table 2 lists the soil and groundwater remediation levels identified in the 2016 ROD Amendment, by DU. Figure 2 shows the locations where remediation is anticipated.

**Table 2: 2016 ROD Amendment COC Cleanup Levels**

| COC   | Units | Northern DU Remediation Level | Non-Process Area DU Remediation Level | Process Area DU Remediation Level | Basis  |
|---|-------|-------------------------------|---------------------------------------|-----------------------------------|--|
| <i>Soil</i>   |       |                               |                                       |                                   |  |
| High molecular weight polycyclic aromatic hydrocarbons (HPAHs) <sup>a</sup> | mg/kg | 18                            | NA                                    | NA                                | Ecological Receptor at Hazard Quotient (HQ)=1  |
| 1,1-Biphenyl  | mg/kg | NA                            | NA                                    | 200                               | Human Health at HQ=1   |
| 2-Methylnaphthalene   | mg/kg | NA                            | NA                                    | 3,000                             | Human Health at HQ=1   |
| BaP Toxicity Equivalence (TEQ)  | mg/kg | NA                            | 2.1                                   | 2.1                               | Human Health at Excess Lifetime Cancer Risk (ELCR) – $1 \times 10^{-5}$                    |
| Dioxin TEQ  | mg/kg | NA                            | 0.00073                               | 0.00073                           | Human Health at HQ=1   |
| Naphthalene   | mg/kg | NA                            | NA                                    | 170                               | Human Health at ELCR – $1 \times 10^{-5}$  |
| Pentachlorophenol   | mg/kg | NA                            | NA                                    | 40                                | Human Health at ELCR – $1 \times 10^{-5}$  |
| <i>Shallow Aquifer Groundwater<sup>b</sup></i>                              |       |                               |                                       |                                   |  |
| 1,1-Biphenyl  | µg/L  | NA                            | 14                                    |                                   | Ecological Screening Value <sup>c</sup>  |
| 1-Methylnaphthalene   | µg/L  | NA                            | 2.1                                   |                                   | Ecological Screening Value <sup>c</sup>  |
| 2-Methylnaphthalene   | µg/L  | NA                            | 63                                    |                                   | Ecological Screening Value <sup>c</sup>  |
| 3&4-Methylphenol (m&p-Cresol)   | µg/L  | NA                            | 272                                   |                                   | Ecological Screening Value <sup>c</sup>  |
| Acenaphthene  | µg/L  | NA                            | 23                                    |                                   | Ecological Screening Value <sup>c</sup>  |
| Acenaphthylene  | µg/L  | NA                            | 7,731                                 |                                   | Site-specific Secondary Contact Recreation <sup>d</sup>                                    |
| Anthracene  | µg/L  | NA                            | 0.30                                  |                                   | Ecological Screening Value <sup>c</sup>  |
| BaP TEQ   | µg/L  | NA                            | 0.25                                  |                                   | Site-specific Secondary Contact Recreation <sup>d</sup>                                    |
| Benzene   | µg/L  | NA                            | 1,125                                 |                                   | Louisiana Ambient Water Quality Criteria (AWQC) – Aquatic Organism Protection <sup>e</sup> |
| Benzo(a)anthracene  | µg/L  | NA                            | 35                                    |                                   | Ecological Screening Value <sup>c</sup>  |
| Benzo(a)pyrene  | µg/L  | NA                            | 0.014                                 |                                   | Ecological Screening Value <sup>c</sup>  |
| Chrysene  | µg/L  | NA                            | 7                                     |                                   | Ecological Screening Value <sup>c</sup>  |
| Dibenz(a,h)anthracene   | µg/L  | NA                            | 5                                     |                                   | Ecological Screening Value <sup>c</sup>  |
| Dibenzofuran  | µg/L  | NA                            | 94                                    |                                   | Ecological Screening Value <sup>c</sup>  |
| Ethylbenzene  | µg/L  | NA                            | 1,600                                 |                                   | Louisiana AWQC – Aquatic Organism Protection <sup>e</sup>                                  |
| Fluoranthene  | µg/L  | NA                            | 6.2                                   |                                   | Ecological Screening Value <sup>c</sup>  |
| Naphthalene   | µg/L  | NA                            | 250                                   |                                   | Ecological Screening Value <sup>c</sup>  |
| Pentachlorophenol   | µg/L  | NA                            | 15                                    |                                   | Federal AWQC – Aquatic Organism Protection <sup>f</sup>                                    |

| COC   | Units | Northern DU Remediation Level | Non-Process Area DU Remediation Level | Process Area DU Remediation Level | Basis                                   |
|---|-------|-------------------------------|---------------------------------------|-----------------------------------|---|
| Phenanthrene  | µg/L  | NA                            | 30                                    |                                   | Ecological Screening Value <sup>c</sup> |
| Pyrene  | µg/L  | NA                            | 7                                     |                                   | Ecological Screening Value <sup>c</sup> |
| Xylenes   | µg/L  | NA                            | 1,340                                 |                                   | Ecological Screening Value <sup>c</sup> |
| <p><i>Notes:</i></p> <p>a. Ecological Preliminary Remediation Goals (PRGs) were not developed for individual HPAH compounds, but they are included in the total HPAH PRG calculation. The individual HPAHs include: benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-c,d)pyrene, and pyrene.</p> <p>b. Non-process Area and Process Area Decision Units lie in the same geographic portion of the shallow aquifer; therefore, the PRGs are the same.</p> <p>c. Source: Texas Commission on Environmental Quality (TCEQ). 2006. Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised). January 2006 Version. <a href="https://www.tceq.texas.gov/remediation/eco/eco.html">https://www.tceq.texas.gov/remediation/eco/eco.html</a> . Accessed on April 22, 2016.</p> <p>d. Site-specific calculated value based on lowest value of excess lifetime cancer risk of <math>1 \times 10^{-4}</math> or HQ of 1.0.</p> <p>e. Source: Table 1, Freshwater Chronic Numerical Criteria for Specific Toxic Substances Louisiana Administrative Code Title 33, Part IX, Subpart 1 (2014b).</p> <p>f. Source: National Recommended Water Quality Criteria (EPA, 2014)</p> <p>Source: 2016 ROD Amendment, Table 1.</p> |       |                               |                                       |                                   |   |

**Figure 2: 2016 ROD Amendment Remediation Footprints<sup>1</sup>**



<sup>1</sup> Figure 3 from the 2016 ROD Amendment.

## **Status of Implementation**

The remedial design for the Site was conducted concurrent to the 1993 ROD's preparation using an expedited remedial design process. EPA contracted with the United States Army Corps of Engineers (USACE) to perform the remedial design for the Site. Remedial activities began on September 30, 1994. The contractor constructed the groundwater and NAPL extraction, treatment and in-place bioremediation components of the selected remedy in 1996. The fluids recovery system includes a network of extraction wells and two extraction trenches that extract contaminated groundwater and NAPL. The process liquid treatment system (PLTS) separates the groundwater from the NAPL and treats the contaminated groundwater. NAPL and aquifer solids are currently recovered in a vacuum (vac) box that is shipped off site. The effluent from the PLTS is either discharged to Creosote Branch Creek or used for the in-place bioremediation system. Since 2013, effluent has not been discharged to the Creek; it is only injected back into the in-place bioremediation system. Fulltime operation of these systems began on October 1, 1996.

Cleanup operations associated with the excavation of the tar mat area began on October 4, 1996. The remedial contractor incinerated the excavated materials and stored the resultant ash, pending analytical results demonstrating compliance with the treatment specifications. The contractor then lined the bottom of the tar mat excavation area with a geotextile fabric, placed the incinerated ash into the excavation area and covered the ash with a 1-foot-thick clay cover. The remedial contractor completed the incineration portion of the remedial action in February 1998. Activities included the treatment of about 56,500 tons of contaminated materials. Due to low levels of contamination, the contractor also excavated and consolidated about 7,000 cubic yards of untreated material into the waste cell.

To track remedial action progress at the Site, USACE installed a network of piezometers and monitoring wells between 1995 and 1998. The monitoring network tracks contaminant concentrations in both the shallow and deep aquifers and determines hydraulic gradients for purposes of verifying capture and containment of the groundwater contamination.

Several years of annual reports documented the progress of the remedy with respect to short-term and long-term goals as described in the 1993 ROD. Despite significant remediation accomplishments, immobile and mobile NAPL present in the vadose zone and shallow aquifer were expected to prevent achievement, within a reasonable timeframe, of the soil and groundwater RAOs established in the 1993 ROD. Annual remedy results started to indicate a decline in remedy performance starting in 2005. The cause of this decline is threefold: (1) the declining condition of the well field and treatment equipment, some of which surpassed its design life; (2) the more mobile portions of the contamination have been recovered by the remedy systems leaving only less mobile contamination behind, which is much more difficult to address; and (3) the changing characteristics of the influent to the treatment plant.

In response to the changes and decline in remedy performance and growing concerns of the long-term effectiveness of the treatment systems to obtain the cleanup objectives for the Site, EPA initiated a revised RI/FS beginning in 2010. The purpose of the revised RI/FS was to develop a more sustainable remedy for the Site which would more effectively address the contamination at the Site and lead to achievement of the Site's cleanup objectives. As noted above, a ROD Amendment was signed in 2016 selecting a revised remedy. Remedial design for the new remedy is currently underway and is expected to continue through 2020. The current remedy will continue to operate during remedial design and construction of the new remedy.

## **Institutional Control (IC) Review**

The Site currently includes several parcels of land. Winn Parish owns much of the site property located within the fence, and access to that portion of the Site is restricted by EPA. Property ownership is unclear for one part of the Site (including portions of the DU areas). EPA is currently working to determine ownership of all affected land parcels and implement appropriate institutional controls.

Table 3 summarizes the current status of institutional controls at the Site. In April 2007, the Winn Parish Police Jury filed a conveyance notice on the north parcel of the Site to provide notice that the Site had been subject to a CERCLA response action (Attachment J-1 in Appendix J). The notice states that hazardous constituents remaining in the site soil and groundwater are above levels that allow for unrestricted land use. The conveyance notice also states that any actions that could adversely affect the remedy or disturbance or removal of soil or groundwater without authorization from LDEQ and EPA could result in legal liability. In April 2017, the Winn Parish Police Jury filed a conveyance notice on the south parcel of the Site to provide notice that the Site had been subject to a CERCLA response action (Attachment J-2 in Appendix J). It limits the use of the south parcel to industrial and commercial use and indicates that the property may be subject to additional future environmental requirements under CERCLA or the Louisiana Environmental Quality Act as may be determined necessary by EPA. In October 2017, the Winn Parish Police Jury entered into a lease agreement with the Winn Parish Fire District No. 3 for use of the south parcel as a training center for the Winn Parish Fire District (Attachment J-3 in Appendix J). The on-site operator is at the site almost daily, therefore, activities at the site are being observed and determinations are being made whether the activities are in compliance with the current IC's.

Additional institutional controls will be evaluated and implemented in accordance with the 2016 ROD Amendment. The 2016 ROD Amendment anticipated the future land use of the Site as commercial/industrial; therefore, institutional controls will be needed to aid in the protection from the waste left on site. The 2016 ROD Amendment also stated that groundwater (including under the waste) at the Site will be monitored and a decision concerning any necessary remedial action for the groundwater will be made in the future after the effectiveness of the remedy can be determined.

**Table 3: Summary of Planned and/or Implemented Institutional Controls (ICs)**

| <b>Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions</b> | <b>ICs Needed</b> | <b>ICs Called for in the Decision Documents</b> | <b>Impacted Parcel(s)</b> | <b>IC Objective</b>  | <b>Title of IC Instrument Implemented and Date (or planned)</b>         |
|--|-------------------|---|---------------------------|--|---|
| Soil and groundwater   | Yes               | Yes   | North parcel of the Site  | Notify landowners of contamination and potential CERCLA liability.                       | Conveyance Notification filed April 12, 2007. Instrument Number 196493  |
| Soil   | Yes               | Yes   | South parcel of the Site  | Notify landowners of contamination and restrict land use to commercial/ industrial uses. | Conveyance Notification filed October 4, 2017. Instrument Number 220670 |
| Soil and groundwater   | Yes               | Yes   | To be determined          | Prevent exposure to remaining contamination.   | Per 2019 ROD amendment, if determined to be necessary                   |

### **Systems Operations/Operation and Maintenance (O&M)**

Based on the 2018 annual report, the total fluids recovery system is made up of 21 recovery wells, two recovery trenches, and a PLTS. The in-situ bioremediation system uses PLTS effluent (treated water), augmented with oxygen, and injects the effluent into the subsurface through a network of five trenches and seven wells. From 1996 through December 2018, the total fluids recovery system operated for 22.3 years, recovering about 205,000 gallons of creosote (oil) and emulsion and 59,000 pounds of creosote-sediment sludge from 105 million gallons of treated groundwater. The in-situ bioremediation system has operated for a similar length of time, destroying, on average, between 40 and 100 pounds of soluble PAH mass per year. Other activities include inspection and maintenance of the capped waste cell, tar mat ash disposal areas and the site fence.

### III. PROGRESS SINCE THE PREVIOUS REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the status of those recommendations.

**Table 4: Protectiveness Determinations/Statements from the 2015 FYR**

| OU #     | Protectiveness Determination | Protectiveness Statement  |
|----------|------------------------------|---|
| Sitewide | Short-term Protective        | The remedy at the site is currently protective of human health and the environment in the short term. A long term protectiveness determination for the current remedy cannot be made until additional evaluations are performed and additional information is obtained. EPA is currently evaluating the site-related risks identified in the 2014 Remedial Investigation Report. In addition, EPA is developing a revised feasibility study which will be used to select a revised remedy for the Site. The revised remedy will not only replace the current remedy but will also address any potential risks identified in the 2014 Remedial Investigation Report. The revised feasibility study will be completed and a subsequent remedy decision will be issued in the near future. After a revised remedy is selected, EPA will issue a revised long term protectiveness determination for the Site. |

**Table 5: Status of Recommendations from the 2015 FYR**

| OU #     | Issue  | Recommendations  | Current Status | Current Implementation Status Description   | Completion Date (if applicable) |
|----------|--|--|----------------|---|---------------------------------|
| Sitewide | The ROD did not identify PCP, ethylbenzene or toluene as groundwater COCs. Those contaminants are consistently detected in shallow groundwater samples above their respective MCLs [maximum contaminant levels]. | MCLs should be established as groundwater cleanup goals for PCP, ethylbenzene and toluene, unless the future remedy imposes a TI [technical impracticability] waiver.  | Completed      | This recommendation is dependent on the future groundwater remedy decision, which will be made following implementation of the soil/DNAPL remedy. | 9/19/2016                       |
| Sitewide | Additional groundwater use restrictions are needed to restrict shallow groundwater use in areas where groundwater contaminants exceed MCLs.  | Consider implementing additional groundwater use restrictions for the Site, in addition to the 2007 Conveyance Notice. Any new institutional controls should be implemented in consultation with LDEQ.   | Completed      | This recommendation is dependent on the future groundwater remedy decision, which will be made following implementation of the soil/DNAPL remedy. | 9/19/2016                       |
| Sitewide | The current remedy is not effectively addressing remaining site contamination and much of the well field and PLTS equipment is nearing the end of its design life or has surpassed it.                           | Complete the ongoing feasibility study to explore alternative remediation strategies to improve cleanup effectiveness, help decrease site remedy costs and enhance the Site's reuse potential, while ensuring the adequate protection of human health and the environment. | Completed      | EPA completed the feasibility study in 2015 and selected a new remedy in the 2016 ROD Amendment.  | 9/19/2016                       |
| Sitewide | The 2014 remedial investigation findings verify the presence of site-related soil contaminant concentrations greater than  | Re-evaluate and reestablish the site boundary based on additional sampling results.  | Completed      | EPA reevaluated the site boundary and made a decision regarding cleanup in  | 9/19/2016                       |

| OU #     | Issue   | Recommendations   | Current Status | Current Implementation Status Description  | Completion Date (if applicable) |
|----------|---|---|----------------|--|---------------------------------|
|          | EPA's acceptable risk range located outside the previously-established site boundary.   |   |                | the 2016 ROD Amendment.  |                                 |
| Sitewide | Additional land use controls are needed to prevent digging or disruption of the capped areas covering contaminated subsurface soil at the Process Area and Tar Mat DUs.   | Implement additional institutional controls to prohibit any activities that could potentially disrupt the capped areas covering contaminated subsurface soil at the Process Area and Tar Mat DUs.   | Completed      | Additional institutional controls will be part of the remedial action for the 2016 ROD Amendment.    | 9/19/2016                       |
| Sitewide | The vapor intrusion pathway has not been evaluated for on-site workers in the PLTS and PLTS support buildings.  | Evaluate current vapor intrusion exposure at the PLTS and PLTS support buildings. Take appropriate actions to prevent exposure, based on evaluation results. Alternatively, vapor intrusion mitigation measures may be considered in lieu of further evaluation to deem the vapor intrusion pathway incomplete.   | Completed      | The 2015 FS concluded that indoor air risks in the Process Area DU lie within the CERCLA risk range. | 4/1/2016                        |
| Sitewide | Under a residential scenario, soils outside of the previously-established site boundary (within the DU areas) are contaminated with 2,3,7,8-TCDD TEQ and BAP TEQ that could pose an unacceptable human health cancer risk and noncancer hazard. | Perform additional sampling to determine the full nature and extent of surface soil contamination in the DUs located outside the site fence that surrounds the Process, Non-Process and Tar Mat DUs. Until the sampling is completed, take actions to prevent human exposure to surface soil in those areas. Based on additional sampling results, develop and implement remedial actions if necessary and implement institutional controls to limit land use at those areas to industrial land use as necessary. Additional remedial actions and institutional controls will only be required for DU areas identified by the revised feasibility study as needing remedial action. | Completed      | EPA completed the feasibility study in 2015 and selected a new remedy in the 2016 ROD Amendment.     | 9/19/2016                       |
| Sitewide | Under an industrial land use scenario, surface soils that are not capped at the Process and Non-Process DUs are contaminated with 2,3,7,8-TCDD TEQ and BAP TEQ that could pose an unacceptable human health cancer risk and noncancer hazard.   | Perform additional sampling to determine the full nature and extent of surface soil contamination at the DUs located inside the site fence that surrounds the Process, Non-Process and Tar Mat DUs. Until the sampling is completed, take actions to prevent human exposure to surface soil in those areas. Based on additional sampling results, develop and implement additional remedial actions if necessary and implement institutional controls for those areas as necessary.   | Completed      | EPA completed the feasibility study in 2015 and selected a new remedy in the 2016 ROD Amendment.     | 9/19/2016                       |

| OU #     | Issue  | Recommendations   | Current Status | Current Implementation Status Description   | Completion Date (if applicable) |
|----------|--|---|----------------|---|---------------------------------|
| Sitewide | Site-related soil COCs are posing risks for both lower and upper level trophic receptors at the Process Area and Non-Process Area DUs. In addition, site-related COCs in Creosote Branch Creek surface water and sediment are posing risks to ecological receptors, to a limited extent. | Finalize the Site's ongoing feasibility study to address the reduction of the ecological risks associated with the Process and Non- Process Areas and water quality in Creosote Branch Creek. | Completed      | The 2015 Risk Assessment did not identify risk exceeding ecological thresholds in the Process Area, Non-Process Area, or Creek DUs. Remedial design and remedial action for the new remedy to be implemented under the 2016 ROD Amendment will address ecological risk in the Northern DU. EPA completed the feasibility study in 2015 and selected a new remedy in the 2016 ROD Amendment. | 9/19/2016                       |

## IV. FIVE-YEAR REVIEW PROCESS

### Community Notification, Community Involvement and Site Interviews

A public notice was made available by press release in the *Winn Parish Enterprise* on 10/10/2019 (Appendix C). It stated that the FYR was underway and invited the public to submit any comments to EPA. The results of the review and the report will be made available at the Site's information repository, Winn Parish Library, located at 200 North Saint John Street in Winnfield, Louisiana.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy implemented to date. The interviews are summarized below and included in full in Appendix I. Keith Horn of LDEQ said that the current groundwater pump and treatment remedy is ineffective and costly, while the new ISS remedy will be effective and eliminate the long-term remediation of the Site and facilitate its reuse. During the last five years, LDEQ has inspected the Site, reviewed and responded to site documents, participated in public meetings and met with city and parish officials. Mr. Horn noted that he was not fully comfortable with the current institutional controls; he said a conveyance notice is still needed on one of the properties and implementation of the new remedy may necessitate new or updated institutional controls.

Karen Tyler, Secretary/Treasurer of the Winn Parish Police Jury, was aware of the Site's environmental issues and feels well informed. She noted there are no changes to local regulations that would affect the Site.

John Knott from EPA O&M contractor Jacobs noted that the current treatment system is operating generally as designed, but given its age, overall maintenance activities have steadily increased. Mr. Knott noted that once the new remedy is enacted, the Site should be available for restricted use by Winn Parish. He said that site groundwater and surface water concentrations have generally remained stable over the last five years and that the frequency of groundwater monitoring could be reduced.

Joseph Collins, plant operator from Jacobs, noted that newer technologies need to be implemented to clean up the Site. He shared that there are more equipment problems than before, which are expected due to the system's age. He is at the Site all day Monday through Friday, and the Site is also checked on the weekends.

## **Data Review**

As previously discussed, EPA initiated additional investigations due to remedy performance concerns of the remedy identified in the 1993 ROD. The remedy in the 2016 ROD Amendment addresses areas of NAPL contamination present in soil and the shallow aquifer. EPA postponed a separate CERCLA decision document to address chemicals present in groundwater until the effectiveness of the remedy addressing NAPL contamination can be evaluated. The current remedy is operating during remedial design and construction of the new remedy. The current long-term monitoring program will be modified, as needed, to address the data needs of the current remedy and remedial design of the new remedy. In 2014, the pumping strategy shifted from plume-wide aggressive NAPL recovery, to hydraulic containment.

Semiannual groundwater monitoring is performed in the Northern and Process Area DUs to track fluids recovery and in-situ bioremediation remedial action progress. The fluids recovery and in-situ bioremediation remedy have operated since October 1996 and have reduced the size of the plume footprint. The groundwater monitoring program includes the following activities:

- Semiannual water level measurement at 35 shallow-aquifer monitoring wells/piezometers and 12 deep-aquifer monitoring wells/piezometers
- Semiannual groundwater sampling for semi-volatile organic compounds at 29 shallow-aquifer monitoring wells, 5 deep-aquifer monitoring wells, and 2 Creosote Branch Creek surface water stations (during the months of April and October)
- Annual groundwater sampling for VOCs at 3 shallow-aquifer monitoring wells during the fall event.

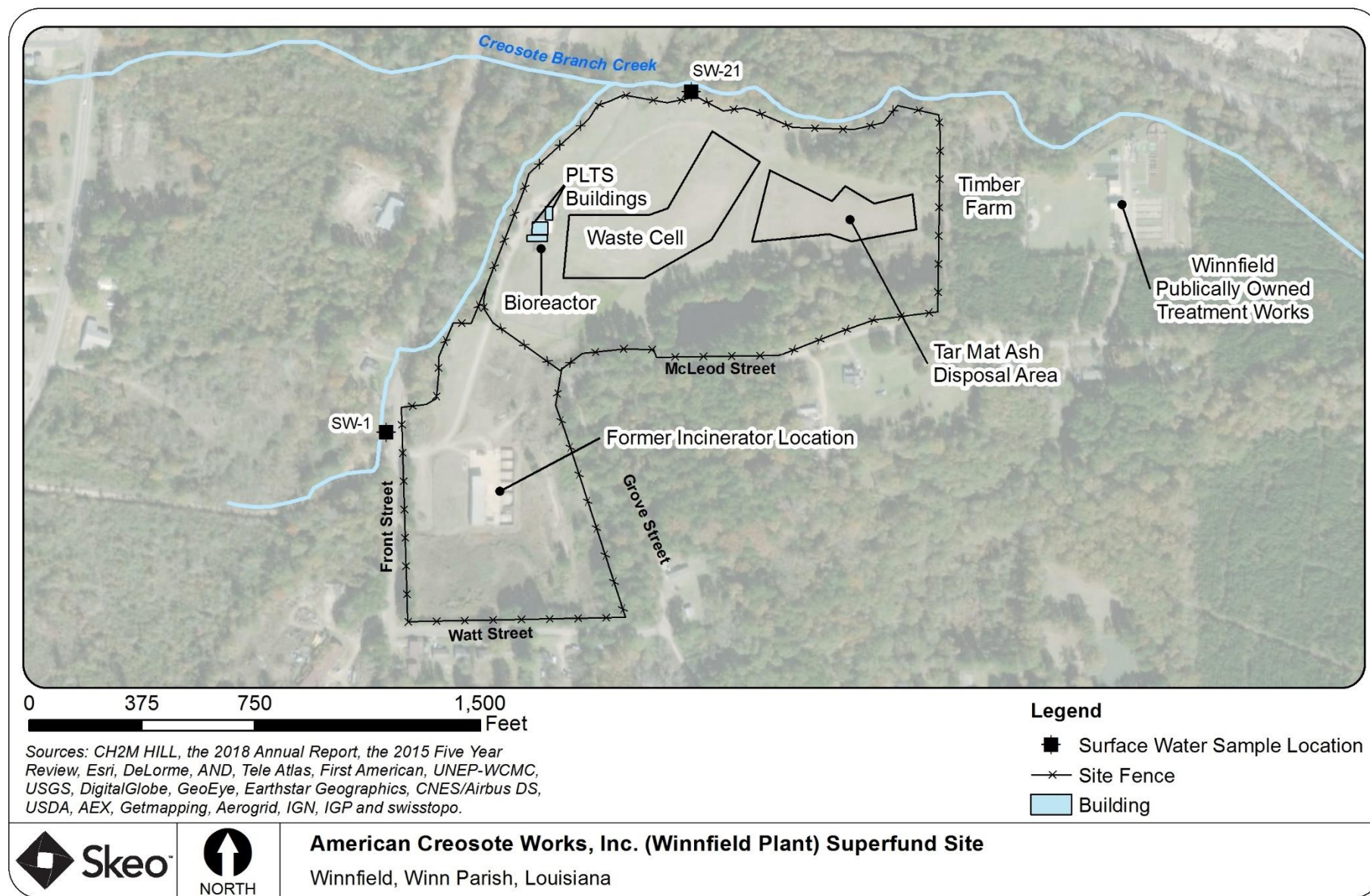
Shallow aquifer groundwater sampling data indicate that while concentrations have significantly declined since the groundwater treatment plant was put in place, significant amounts of contamination remain on site. Based upon 2017-2018 data, the highest concentrations for naphthalene, benzo(a)pyrene, and pentachlorophenol were 18,900 ug/l, 149 ug/l, and 2,440 ug/l, respectively. In addition, several on-site wells still have measurable NAPL with well R-17 in 2018 having the highest thickness recorded of all wells of greater than 36 inches. All the above contaminant concentrations and NAPL observations are located within the recovery system boundaries. Appendix F, Table F-1 shows the current maximum concentrations of constituents in all wells by year.

Despite this, groundwater contamination appears contained to the site area south of the creek. Figure F-1 shows current groundwater elevations, which indicate the contamination is being hydraulically contained. While groundwater north of the creek is contaminated with low levels (i.e., below 1 part per billion) of PAHs, the 2018 Monitoring Report indicates that these occurrences may be attributed to leaching of low-level contamination detected in Northern DU subsurface soil.

In addition, surface water sampling data do not indicate impacts from groundwater. Surface water sampling is conducted twice per year at two locations on Creosote Branch Creek (SW-1 and SW-21; see Figure 3 for locations) for carcinogenic and non-carcinogenic PAHs. Surface water sampling location SW-1 is located upgradient of site impacts. SW-21 is located downgradient of the Site. During this review period, surface water samples were comparable at both locations (see Appendix F, Table F-2 for carcinogenic PAHs) which indicate there is no significant contamination contribution from groundwater migration to surface water. Surface water sampling will continue on a semi-annual basis as the groundwater sampling.

Monitoring data indicate there are no completed exposure pathways, and groundwater monitoring is ongoing.

**Figure 3: Detailed Site Map**



*Disclaimer:* This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

## **Site Inspection**

The site inspection took place on 11/14/2019. Participants included EPA RPM Michael Hebert, Keith Horn from LDEQ, John Knott, Scott McKinley, Todd Dye and Joseph Collins from EPA O&M contractor Jacobs, and Kirby Webster and Kelly MacDonald from EPA support contractor Skeo. The purpose of the inspection was to assess the protectiveness of the remedy. The site inspection checklist and site inspection photographs are included in Appendices D and E, respectively.

The site area was surrounded by a fence in very good condition. At the site entrance, there was a sign explaining that the area is a Superfund site with regulatory agency contact information included. There was a second entrance gate to the waste cell and tar mat area, which had signs indicating the area contains hazardous waste. The group walked the waste cell, which was vegetated and in good condition. Monitoring and injection wells were present throughout the Site and are marked with bollards. The group also viewed the tar mat area, which was vegetated and in good condition. No evidence of trespassing was encountered during the inspection, but the PLTS operator noted that there has been some trespassing with tools being stolen in the last five years. Police reports have been filed for the two events where trespassers entered buildings and drove on-site equipment. Jacobs has since improved site security by employing a security company. There have been no issues since security was improved.

Site inspection participants toured the PLTS, which has several indoor and outdoor components, all of which were operational. The group also walked by Creosote Branch Creek and the Fire Water Pond. Lastly, participants saw the former incinerator area, which is now in use by the fire department for training purposes.

Skeo visited the Site's information repository, the Winn Parish Library, which did not have any site-related documents available.

## **V. TECHNICAL ASSESSMENT**

**QUESTION A:** Is the remedy functioning as intended by the decision documents?

### **Question A Summary:**

No. The operating remedy is preventing current exposure and did address a significant amount of contamination, however the remedy implemented from the 1993 ROD will be unable to achieve all RAOs within a reasonable timeframe. EPA issued a ROD Amendment in 2016 updating the remedy. The new remedy is in the design phase and will be implemented once funding is available. The new remedy is anticipated to remove or treat the immobile and mobile NAPL that is a long-term constant source of contamination. Groundwater will be monitored and a decision concerning any necessary groundwater remedial action will be made in the future after the effectiveness of the new remedy can be determined.

In the interim, the fluids recovery and in-situ bioremediation remedy have operated since October 1996 and have reduced the size of the plume footprint significantly. Groundwater pumping, treatment and reinjection contains the groundwater contamination and will continue to operate during construction of the amended remedy. The waste cells are vegetated and being maintained properly. Groundwater data and surface water samples collected during this review period indicate contamination remains on site.

In April 2007, the Winn Parish Police Jury filed a conveyance notice on the north parcel of the Site to provide notice that the Site had been subject to a CERCLA response action. In 2017, the Winn Parish Police Jury filed a Conveyance Notification on the southern parcel limiting future use to industrial and commercial use. The notice indicates the property may be subject to additional future environmental regulations. The 2016 ROD Amendment included institutional controls as a remedy component for the other site areas. These will be implemented in the future.

**QUESTION B:** Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?

**Question B Summary:**

Yes. In the interim, the RAOs of preventing contact with contaminated soil and minimizing further migration of contaminants to the current 1993 remedy remain valid, however this ROD has been amended and a new remedy will be implemented. The RAOs established in the 2016 ROD Amendment remain valid for the new remedy, but several 2016 ROD Amendment RAOs do not apply to the current remedy in place.

The exposure assumptions, toxicity data and cleanup levels remain valid. The 2016 ROD Amendment relied on an updated risk assessment completed in 2014. The exposure assumptions remain valid because EPA updated standard default exposure factors in 2012. The remedial levels also remain valid based on a comparison to current human health-based screening levels and applicable or relevant requirements (ARARs) (Appendix G and H). The human health-based remedial levels were determined to be equivalent to cancer risks that fall within or below EPA's risk management range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$  or equal to or less than the target noncancer hazard quotient (HQ) of 1. The surface water screening levels remain current for most COCs but have become more stringent for three PAHs, anthracene, benzo(a)anthracene and dibenz(a,h)anthracene. These values are based on ecological risk. Since the 2016 ROD Amendment has not yet been implemented, these values should be reviewed to determine if any changes are needed.

In 2017, the EPA IRIS program released its final assessment of benzo(a)pyrene. In the assessment, EPA adjusted the toxicity values (oral slope factor from  $7.3 \text{ [mg/kg-day]}^{-1}$  to  $1 \text{ [mg/kg-day]}^{-1}$ ) for benzo(a)pyrene which resulted in an increase (0.015 mg/kg to 0.15 mg/kg) in regional screening levels. These adjustments, if applied to site specific cleanup levels, would result in an increase in the cleanup level for benzo(a)pyrene. Therefore, benzo(a)pyrene cleanup levels that were developed using the previous toxicity values remain protective. Due to the presence of volatile compounds in shallow groundwater and two buildings (PLTS building and the PLTS support building) on a portion of the Site, this FYR evaluated the current vapor intrusion exposure pathway. As shown in Appendix H, Table H-4, the screening-level vapor intrusion risk evaluation shows that the cumulative cancer risk is within EPA's risk management range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ , and the noncancer HQ is below the threshold of 1.0. Thus, the vapor intrusion exposure pathway is not a pathway of concern at these two buildings, based on current site conditions and further investigation is not needed at this time.

**QUESTION C:** Has any other information come to light that could call into question the protectiveness of the remedy?

No. No other information has come to light that could call into question the protectiveness of the remedy.

## VI. ISSUES/RECOMMENDATIONS

| Issues/Recommendations   |
|--|
| <b>OU(s) without Issues/Recommendations Identified in the FYR:</b> |
| <i>None</i>  |

| Issues and Recommendations Identified in the Five-Year Review: |
|--|
|--|

|                                      |  |                          |                        |                       |
|--------------------------------------|--|--------------------------|------------------------|-----------------------|
| <b>OU(s): 01</b>                     | <b>Issue Category: Remedy Performance</b>  |                          |                        |                       |
|                                      | <b>Issue:</b> The remedy selected in the 1993 ROD will not achieve RAOs in a reasonable timeframe. |                          |                        |                       |
|                                      | <b>Recommendation:</b> Implement remedy selected in 2016 ROD amendment to ensure RAOs can be met.  |                          |                        |                       |
| <b>Affect Current Protectiveness</b> | <b>Affect Future Protectiveness</b>  | <b>Party Responsible</b> | <b>Oversight Party</b> | <b>Milestone Date</b> |
| No                                   | Yes  | EPA                      | EPA                    | 9/30/2024             |

### OTHER FINDINGS

Several additional recommendations were identified during the FYR. These recommendations do not affect current and/or future protectiveness.

- Update the Winn Parish Library with site-related documents.
- Implement additional institutional controls, as necessary related to the 2016 ROD Amendment.
- Determine a groundwater remedy after the effectiveness of the 2016 ROD Amendment remedy has been evaluated.
- Three 2016 ROD Amendment groundwater COCs (anthracene, benzo(a)anthracene and dibenz(a,h)anthracene) have screening levels that are now more stringent. Include an evaluation of these COCs within the evaluation of the future groundwater remedy.

## VII. PROTECTIVENESS STATEMENT

| Sitewide Protectiveness Statement  |
|--|
| <i>Protectiveness Determination:</i><br>Short-term Protective  |
| <i>Protectiveness Statement:</i><br>The remedy at the Site is currently protective of human health and the environment in the short term. Remedial activities completed to date currently prevent exposure to unacceptable risks for all potential exposure pathways. However in order for the remedy to be protective in the long-term, the following actions need to be taken to ensure protectiveness: the remedy selected in the ROD amendment should be implemented in order to achieve RAOs. |

## **VIII. NEXT REVIEW**

The next FYR Report for the American Creosote Works, Inc. (Winnfield Plant) Superfund site is required five years from the completion date of this review.

## **APPENDIX A – REFERENCE LIST**

2014 Remedial Investigation Version Number 1.1. American Creosote Works Site Feasibility Study. Prepared by CH2MHill for United States Environmental Protection Agency Region 6. October 2015.

2015 Feasibility Study Version No. 2.0. American Creosote Works Site Feasibility Study. Prepared by CH2MHill for United States Environmental Protection Agency Region 6. April 2016.

Conveyance Notification. Winn Parish. April 12, 2007.

Conveyance Notification. Winn Parish. October 4, 2017.

Fourth Five-Year Review Report for the American Creosote Works, Inc. (Winnfield Plant) Superfund Site, Winnfield, Winn Parish, Louisiana. Prepared by United States Environmental Protection Agency Region 6. May 15, 2015.

Record of Decision. American Creosote Works, Inc. (Winnfield Plant) Site. United States Environmental Protection Agency. April 1993.

Record of Decision Amendment. American Creosote Works, Inc. (Winnfield Plant) Superfund Site. Winnfield, Louisiana. United States Environmental Protection Agency Region 6. September 19, 2016.

Year 2016 Annual Operations Report Version 1.1. American Creosote Works, Inc. Remedial Action. Winnfield, Louisiana. CH2M Hill. August 2017.

Year 2017 Annual Operations Report Version 1.0. American Creosote Works, Inc. Remedial Action. Winnfield, Louisiana. CH2M Hill. June 2018.

Year 2018 Annual Operations Report Version 1.1. American Creosote Works, Inc. Remedial Action. Winnfield, Louisiana. CH2M Hill. August 2019.

## APPENDIX B – SITE CHRONOLOGY

**Table B-1: Site Chronology**

| Event  | Date               |
|--|--------------------|
| Several different companies performed wood treating operations at the Site.  | 1901-1985          |
| LDEQ inspectors found the Site's owner, Stallworth Timber Company, had abandoned the property.   | June 1985          |
| EPA conducted several site investigations.   | 1987-1988          |
| EPA issued a UAO to Stallworth Timber Company directing them to fence the Site and post warning signs around the most contaminated areas.  | May 1988           |
| EPA initiated the Site's first emergency removal action to drain on-site storage tanks, construct a berm around the process area to contain and stabilize heavily contaminated soils, and install an overflow filtration system. | May 31, 1988       |
| EPA completed the first emergency removal action.  | June 5, 1988       |
| In response to the May 1988 UAO, Stallworth Timber Company constructed a fence around the Site.  | July 1988          |
| EPA issued a UAO to Stallworth Timber Company for a second removal action. Stallworth Timber Company declined to take action.  | February 13, 1989  |
| EPA initiated a second emergency removal action to address the immediate threats posed by the Site.  | March 17, 1989     |
| EPA completed the second emergency removal action.   | August 21, 1989    |
| EPA initiated a combined RI/FS.  | December 27, 1991  |
| EPA proposed the Site for listing on the Superfund program's NPL.  | February 7, 1992   |
| EPA began the Site's remedial design.  | February 19, 1992  |
| EPA finalized the Site's listing on the NPL.   | October 14, 1992   |
| EPA completed the RI/FS and signed the Site's ROD.   | April 28, 1993     |
| EPA completed the remedial design.   | September 28, 1993 |
| EPA began remedial action at the Site.   | September 1994     |
| Full-time operation of the Site's PLTS and in-place bioremediation system began.   | October 1, 1996    |
| EPA issued the Site's Preliminary Close Out Report documenting completion of remedy construction.  | June 4, 1999       |
| EPA issued the Site's First FYR Report.  | September 19, 2000 |
| EPA issued the Site's Second FYR Report.   | September 19, 2005 |
| EPA issued the Site's Third FYR Report.  | May 19, 2010       |
| EPA initiated the Site's second FS.  | September 2, 2010  |
| EPA released the Site's second RI and released an updated Risk Assessment Addendum Report.   | April 2014         |
| EPA issued the Site's Fourth FYR Report.   | May 15, 2015       |
| EPA finalized the Site's second FS.  | October 2015       |
| EPA issued the Site's ROD Amendment.   | September 19, 2016 |

## APPENDIX C – PRESS NOTICE



# Louisiana Public Notice

## State - Parish -

Published October 9, 2019 in Winn Parish Enterprise-Winnfield News American.

**Superfund Site  
Public Notice**  
U.S. Environmental  
Protection Agency, Region 6

**October 2019**

The U.S. Environmental Protection Agency, Region 6 (EPA) will be conducting the five-year review of remedy implementation and performance at the Superfund site (Site) in . . . From 1901 to

1979 and from 1981 to 1985, site owners operated wood treatment facilities on site. Facility operations resulted in soil and groundwater contamination. The Site is fenced. Nearby land uses include agricultural, residential and recreational areas. The site-wide remedy includes excavation of soils, solidification of contaminated soils and groundwater, institutional controls, and groundwater monitoring.

The five-year review will determine if the remedies are still protective of human health and the environment. The five-year review is scheduled for completion in May 2020.

The report will be made available to the public at the following local information repository:

Winn Parish Library  
200 North Saint John Street  
Winnfield, Louisiana 71483  
(318) 628-4478

Site status updates are available on the Internet at [www.epa.gov/superfund/american-cresote-works-winnfield](http://www.epa.gov/superfund/american-cresote-works-winnfield)

**FOR SALE:**



**For Sale: Floating Duck Blind? Boat dock-maybe? Or it can be refurbished into a 28-foot party barge again. Has decking, but probably needs new. Mer-cruiser drive is shot. Comes with 28-foot trailer. \$5,000. Call 318-352-3618.**

All media inquiries should be directed to the EPA Press Office at (214) 665-2200. For more information about the Site, contact:

Mike Hebert/Remedial Project Manager  
(214) 665-8315  
or 1-800-533-3508 (toll-free)  
or by email at [hebert.michael@epa.gov](mailto:hebert.michael@epa.gov)

Jason McKinney/Community Involvement Coordinator  
(214) 665-8132  
or 1-800-533-3508 (toll-free)  
or by email at [mckinney.jason@epa.gov](mailto:mckinney.jason@epa.gov)  
#27919  
10-9-19

\*\*\*\*\*

Published September 11 and October 9, 2019 in Winn Parish Enterprise-Winnfield News American.

## APPENDIX D – SITE INSPECTION CHECKLIST

| <b>FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST</b>   |  |   |  |
|---|--|---|--|
| <b>I. SITE INFORMATION</b>  |  |   |  |
| <b>Site Name:</b> American Creosote Works, Inc.<br>(Winnfield Plant)  |  | <b>Date of Inspection:</b> <u>11/14/2019</u>                      |  |
| <b>Location and Region:</b> Winnfield, LA 6   |  | <b>EPA ID:</b> LAD000239814                                       |  |
| <b>Agency, Office or Company Leading the Five-Year Review:</b> <u>EPA</u>   |  | <b>Weather/Temperature:</b> <u>Overcast 40 degrees Fahrenheit</u> |  |
| <b>1993 Remedy Includes:</b> (Check all that apply) <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input checked="" type="checkbox"/> Landfill cover/containment<br/> <input type="checkbox"/> Access controls<br/> <input type="checkbox"/> Institutional controls<br/> <input checked="" type="checkbox"/> Groundwater pump and treatment<br/> <input type="checkbox"/> Surface water collection and treatment<br/> <input checked="" type="checkbox"/> Other: <u>Biological Treatment</u> </div> <div style="width: 48%;"> <input type="checkbox"/> Monitored natural attenuation<br/> <input checked="" type="checkbox"/> Groundwater containment<br/> <input type="checkbox"/> Vertical barrier walls           </div> </div>   |  |   |  |
| <b>2016 Remedy Includes:</b> (Check all that apply) <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input type="checkbox"/> Landfill cover/containment<br/> <input type="checkbox"/> Access controls<br/> <input checked="" type="checkbox"/> Institutional controls<br/> <input type="checkbox"/> Groundwater pump and treatment<br/> <input type="checkbox"/> Surface water collection and treatment<br/> <input checked="" type="checkbox"/> Other: <u>Soil excavation; In-situ stabilization with a soil cover; Groundwater monitoring</u> </div> <div style="width: 48%;"> <input type="checkbox"/> Monitored natural attenuation<br/> <input type="checkbox"/> Groundwater containment<br/> <input type="checkbox"/> Vertical barrier walls           </div> </div>   |  |   |  |
| <b>Attachments:</b> <input type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached   |  |   |  |
| <b>II. INTERVIEWS</b> (check all that apply)  |  |   |  |
| <b>1. O&amp;M Site Manager</b> <u>John Knott</u> <u>Project Manager, Jacobs</u> <u>11/19/2019</u><br><div style="display: flex; justify-content: space-between;"> <div style="width: 40%;">Name</div> <div style="width: 20%;">Title</div> <div style="width: 20%;">Date</div> <div style="width: 20%;"></div> </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone: _____<br>Problems, suggestions <input type="checkbox"/> Report attached: _____  |  |   |  |
| <b>2. O&amp;M Staff</b> <u>Joe Collins</u> <u>On-site staff</u> <u>11/19/2019</u><br><div style="display: flex; justify-content: space-between;"> <div style="width: 40%;">Name</div> <div style="width: 20%;">Title</div> <div style="width: 20%;">Date</div> <div style="width: 20%;"></div> </div> Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone    Phone: _____<br>Problems/suggestions <input type="checkbox"/> Report attached: _____   |  |   |  |
| <b>3. Local Regulatory Authorities and Response Agencies</b> (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.<br><br><div style="margin-bottom: 20px;">             Agency <u>LDEQ</u><br/>             Contact <u>Keith Horn</u>    <u>Project</u>    <u>10/02/2019</u><br/> <div style="display: flex; justify-content: space-between;"> <div style="width: 40%;">Name</div> <div style="width: 20%;">Manager</div> <div style="width: 20%;">Date</div> <div style="width: 20%;">Phone No.</div> </div>             Title _____<br/>             Problems/suggestions <input type="checkbox"/> Report attached: _____           </div> <div>             Agency _____<br/>             Contact _____ Name _____<br/> <div style="display: flex; justify-content: space-between;"> <div style="width: 40%;">Title</div> <div style="width: 20%;">Date</div> <div style="width: 20%;">Phone No.</div> <div style="width: 20%;"></div> </div>             Problems/suggestions <input type="checkbox"/> Report attached: _____<br/><br/>             Agency _____           </div> |  |   |  |

|  |            |             |            |                 |
|--|------------|-------------|------------|-----------------|
| Contact  | Name _____ | Title _____ | Date _____ | Phone No. _____ |
| Problems/suggestions <input type="checkbox"/> Report attached: _____ |            |             |            |                 |
| Agency _____   |            |             |            |                 |
| Contact  | Name _____ | Title _____ | Date _____ | Phone No. _____ |
| Problems/suggestions <input type="checkbox"/> Report attached: _____ |            |             |            |                 |
| Agency _____   |            |             |            |                 |
| Contact  | Name _____ | Title _____ | Date _____ | Phone No. _____ |
| Problems/suggestions <input type="checkbox"/> Report attached: _____ |            |             |            |                 |

4. **Other Interviews** (optional) ☐ Report attached: \_\_\_\_\_

Mike Hebert, EPA Region 6 RPM – Interview responses submitted by email on 11/8/2019.

Karen Tyler, Winn Parish Police Jury Secretary/Treasurer – Interview responses submitted by email on 10/4/2019.

**III. ON-SITE DOCUMENTS AND RECORDS VERIFIED** (check all that apply)

|                |  |   |   |   |   |
|----------------|--|---|---|---|---|
| 1.             | <b>O&amp;M Documents</b>   | <input checked="" type="checkbox"/> O&M manual        | <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date     | <input type="checkbox"/> N/A            |
|                |  | <input type="checkbox"/> As-built drawings            | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date     | <input checked="" type="checkbox"/> N/A |
|                |  | <input checked="" type="checkbox"/> Maintenance logs  | <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date     | <input type="checkbox"/> N/A            |
| Remarks: _____ |  |   |   |   |   |
| 2.             | <b>Site-Specific Health and Safety Plan</b>                                  | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date        | <input type="checkbox"/> N/A            |   |
|                | <input checked="" type="checkbox"/> Contingency plan/emergency response plan | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date        | <input type="checkbox"/> N/A            |   |
| Remarks: _____ |  |   |   |   |   |
| 3.             | <b>O&amp;M and OSHA Training Records</b>                                     | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date        | <input type="checkbox"/> N/A            |   |
| Remarks: _____ |  |   |   |   |   |
| 4.             | <b>Permits and Service Agreements</b>  | <input type="checkbox"/> Air discharge permit         | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date     | <input checked="" type="checkbox"/> N/A |
|                |  | <input type="checkbox"/> Effluent discharge           | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date     | <input checked="" type="checkbox"/> N/A |
|                |  | <input type="checkbox"/> Waste disposal, POTW         | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date     | <input checked="" type="checkbox"/> N/A |
|                |  | <input type="checkbox"/> Other permits: _____         | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date     | <input checked="" type="checkbox"/> N/A |
| Remarks: _____ |  |   |   |   |   |
| 5.             | <b>Gas Generation Records</b>  | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date                   | <input checked="" type="checkbox"/> N/A |   |
| Remarks: _____ |  |   |   |   |   |
| 6.             | <b>Settlement Monument Records</b>   | <input type="checkbox"/> Readily available            | <input type="checkbox"/> Up to date                   | <input checked="" type="checkbox"/> N/A |   |
| Remarks: _____ |  |   |   |   |   |
| 7.             | <b>Groundwater Monitoring Records</b>  | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date        | <input type="checkbox"/> N/A            |   |

|   |  |  |  |
|---|--|--|--|
| Remarks: _____  |  |  |  |
| 8.  | <b>Leachate Extraction Records</b>   | <input type="checkbox"/> Readily available               | <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A    |
| Remarks: _____  |  |  |  |
| 9.  | <b>Discharge Compliance Records</b>  |  |  |
|   | <input type="checkbox"/> Air   | <input type="checkbox"/> Readily available               | <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A    |
|   | <input checked="" type="checkbox"/> Water (effluent)   | <input checked="" type="checkbox"/> Readily available    | <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A    |
| Remarks: <u>PLTS effluent is reinjected into the ground as part of the bioremediation.</u>                              |  |  |  |
| 10.   | <b>Daily Access/Security Logs</b>  | <input checked="" type="checkbox"/> Readily available    | <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> N/A    |
| Remarks: _____  |  |  |  |
| <b>IV. O&amp;M COSTS</b>  |  |  |  |
| 1.  | <b>O&amp;M Organization</b>  |  |  |
|   | <input type="checkbox"/> State in-house  | <input type="checkbox"/> Contractor for state            |  |
|   | <input type="checkbox"/> PRP in-house  | <input type="checkbox"/> Contractor for PRP              |  |
|   | <input type="checkbox"/> Federal facility in-house   | <input type="checkbox"/> Contractor for Federal facility |  |
|   | <input checked="" type="checkbox"/> <u>Jacobs performs all activities at the Site as EPA's contractor.</u> |  |  |
| 2.  | <b>O&amp;M Cost Records</b>  |  |  |
|   | <input checked="" type="checkbox"/> Readily available  | <input type="checkbox"/> Up to date                      |  |
|   | <input checked="" type="checkbox"/> Funding mechanism/agreement in place                                   | <input type="checkbox"/> Unavailable                     |  |
|   | Original O&M cost estimate: _____ <input type="checkbox"/> Breakdown attached                              |  |  |
|   | Total annual cost by year for review period if available   |  |  |
|   | From: <u>01/01/2018</u>  | To: <u>12/31/2018</u>                                    | <u>\$527,300</u> <input type="checkbox"/> Breakdown attached                   |
|   | Date   | Date   | Total cost   |
|   | From: <u>01/01/2017</u>  | To: <u>12/31/2017</u>                                    | <u>\$464,000</u> <input type="checkbox"/> Breakdown attached                   |
|   | Date   | Date   | Total cost   |
|   | From: <u>01/01/2016</u>  | To: <u>12/31/2016</u>                                    | <u>\$471,900</u> <input type="checkbox"/> Breakdown attached                   |
|   | Date   | Date   | Total cost   |
|   | From: <u>01/01/2015</u>  | To: <u>12/31/2015</u>                                    | <u>\$434,100</u> <input type="checkbox"/> Breakdown attached                   |
|   | Date   | Date   | Total cost   |
|   | From: <u>01/01/2014</u>  | To: <u>12/31/2014</u>                                    | <u>\$607,500</u> <input type="checkbox"/> Breakdown attached                   |
|   | Date   | Date   | Total cost   |
| 3.  | <b>Unanticipated or Unusually High O&amp;M Costs during Review Period</b>                                  |  |  |
| Describe costs and reasons: _____   |  |  |  |
| <b>V. ACCESS AND INSTITUTIONAL CONTROLS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A |  |  |  |
| <b>A. Fencing</b>   |  |  |  |
| 1.  | <b>Fencing Damaged</b>   | <input type="checkbox"/> Location shown on site map      | <input checked="" type="checkbox"/> Gates secured <input type="checkbox"/> N/A |
| Remarks: _____  |  |  |  |
| <b>B. Other Access Restrictions</b>   |  |  |  |

|   |   |   |   |
|---|---|---|---|
| 1.  | <b>Signs and Other Security Measures</b>                                | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A  |
| Remarks: <u>Site fencing is marked with warning signs identifying the property as a Superfund site.</u>   |   |   |   |
| <b>C. Institutional Controls (ICs)</b>  |   |   |   |
| 1.  | <b>Implementation and Enforcement</b>                                   |   |   |
|   | Site conditions imply ICs not properly implemented                      | <input type="checkbox"/> Yes                        | <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A                 |
|   | Site conditions imply ICs not being fully enforced                      | <input type="checkbox"/> Yes                        | <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A                 |
|   | Type of monitoring (e.g., self-reporting, drive by): _____              |   |   |
|   | Frequency: _____  |   |   |
|   | Responsible party/agency: _____   |   |   |
|   | Contact _____   | _____   | _____   |
|   | Name  | Title   | Date  |
|   |   |   | Phone no.   |
|   | Reporting is up to date   | <input type="checkbox"/> Yes                        | <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A                 |
|   | Reports are verified by the lead agency                                 | <input type="checkbox"/> Yes                        | <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A                 |
|   | Specific requirements in deed or decision documents have been met       | <input type="checkbox"/> Yes                        | <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A                 |
|   | Violations have been reported   | <input type="checkbox"/> Yes                        | <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A                 |
|   | Other problems or suggestions: <input type="checkbox"/> Report attached |   |   |
| 2.  | <b>Adequacy</b>   | <input type="checkbox"/> ICs are adequate           | <input checked="" type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A |
| Remarks: <u>Additional ICs are required as indicated in the 2016 ROD Amendment that have not yet been put in place.</u>   |   |   |   |
| <b>D. General</b>   |   |   |   |
| 1.  | <b>Vandalism/Trespassing</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> No vandalism evident                                       |
| Remarks: <u>Two recent vandalism incidents have been recorded where buildings have been entered and tools have been stolen. Additional site security has been added and no additional violations have occurred.</u> |   |   |   |
| 2.  | <b>Land Use Changes On Site</b>   | <input checked="" type="checkbox"/> N/A             |   |
| Remarks: _____  |   |   |   |
| 3.  | <b>Land Use Changes Off Site</b>  | <input checked="" type="checkbox"/> N/A             |   |
| Remarks: _____  |   |   |   |
| <b>VI. GENERAL SITE CONDITIONS</b>  |   |   |   |
| <b>A. Roads</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A   |   |   |   |
| 1.  | <b>Roads Damaged</b>  | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> Roads adequate <input type="checkbox"/> N/A     |
| Remarks: _____  |   |   |   |
| <b>B. Other Site Conditions</b>   |   |   |   |
| Remarks: _____  |   |   |   |
| <b>VII. LANDFILL COVERS</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A   |   |   |   |
| <b>A. Landfill Surface</b>  |   |   |   |
| 1.  | <b>Settlement</b> (low spots)   | <input type="checkbox"/> Location shown on site map | <input checked="" type="checkbox"/> Settlement not evident                          |
| Area extent: _____  |   | Depth: _____  |   |

|   |  |   |   |
|---|--|---|---|
| Remarks: _____  |  |   |   |
| 2.  | <b>Cracks</b><br>Lengths: _____<br>Widths: _____<br>Depths: _____<br>Remarks: _____  | <input type="checkbox"/> Location shown on site map<br><input checked="" type="checkbox"/> Cracking not evident               | <input checked="" type="checkbox"/> Cracking not evident<br>Depths: _____ |
| 3.  | <b>Erosion</b><br>Area extent: _____<br>Remarks: _____   | <input type="checkbox"/> Location shown on site map<br><input checked="" type="checkbox"/> Erosion not evident                | <input checked="" type="checkbox"/> Erosion not evident<br>Depth: _____   |
| 4.  | <b>Holes</b><br>Area extent: _____<br>Remarks: _____   | <input type="checkbox"/> Location shown on site map<br><input checked="" type="checkbox"/> Holes not evident                  | <input checked="" type="checkbox"/> Holes not evident<br>Depth: _____     |
| 5.  | <b>Vegetative Cover</b><br><input checked="" type="checkbox"/> No signs of stress<br>Remarks: _____  | <input checked="" type="checkbox"/> Grass<br><input type="checkbox"/> Trees/shrubs (indicate size and locations on a diagram) | <input checked="" type="checkbox"/> Cover properly established            |
| 6.  | <b>Alternative Cover</b> (e.g., armored rock, concrete)<br>Remarks: _____  |   | <input checked="" type="checkbox"/> N/A                                   |
| 7.  | <b>Bulges</b><br>Area extent: _____<br>Remarks: _____  | <input type="checkbox"/> Location shown on site map<br><input checked="" type="checkbox"/> Bulges not evident                 | <input checked="" type="checkbox"/> Bulges not evident<br>Height: _____   |
| 8.  | <b>Wet Areas/Water Damage</b> <input checked="" type="checkbox"/> Wet areas/water damage not evident<br><br><div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <input type="checkbox"/> Wet areas<br/> <input type="checkbox"/> Ponding<br/> <input type="checkbox"/> Seeps<br/> <input type="checkbox"/> Soft subgrade </div> <div style="width: 30%;"> <input type="checkbox"/> Location shown on site map<br/> <input type="checkbox"/> Location shown on site map<br/> <input type="checkbox"/> Location shown on site map<br/> <input type="checkbox"/> Location shown on site map </div> <div style="width: 30%;"> Area extent: _____<br/> Area extent: _____<br/> Area extent: _____<br/> Area extent: _____ </div> </div> Remarks: _____ |   |   |
| 9.  | <b>Slope Instability</b> <input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map<br><input checked="" type="checkbox"/> No evidence of slope instability<br>Area extent: _____<br>Remarks: _____   |   |   |
| <b>B. Benches</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A<br>(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.) |  |   |   |
| 1.  | <b>Flows Bypass Bench</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay<br>Remarks: _____   |   |   |
| 2.  | <b>Bench Breached</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay<br>Remarks: _____   |   |   |
| 3.  | <b>Bench Overtopped</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A or okay   |   |   |

|   |   |  |  |
|---|---|--|--|
| Remarks: _____  |   |  |  |
| <b>C. Letdown Channels</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A<br>(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.) |   |  |  |
| 1.  | <b>Settlement</b> (Low spots) <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of settlement<br>Area extent: _____    Depth: _____<br>Remarks: _____  |  |  |
| 2.  | <b>Material Degradation</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of degradation<br>Material type: _____    Area extent: _____<br>Remarks: _____   |  |  |
| 3.  | <b>Erosion</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of erosion<br>Area extent: _____    Depth: _____<br>Remarks: _____  |  |  |
| 4.  | <b>Undercutting</b> <input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of undercutting<br>Area extent: _____    Depth: _____<br>Remarks: _____  |  |  |
| 5.  | <b>Obstructions</b> Type: _____ <input type="checkbox"/> No obstructions<br><input type="checkbox"/> Location shown on site map    Area extent: _____<br>Size: _____<br>Remarks: _____  |  |  |
| 6.  | <b>Excessive Vegetative Growth</b> Type: _____<br><input type="checkbox"/> No evidence of excessive growth<br><input type="checkbox"/> Vegetation in channels does not obstruct flow<br><input type="checkbox"/> Location shown on site map    Area extent: _____<br>Remarks: _____   |  |  |
| <b>D. Cover Penetrations</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A  |   |  |  |
| 1.  | <b>Gas Vents</b> <input type="checkbox"/> Active <input type="checkbox"/> Passive<br><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition<br><input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs maintenance <input checked="" type="checkbox"/> N/A<br>Remarks: _____ |  |  |
| 2.  | <b>Gas Monitoring Probes</b><br><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition<br><input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs maintenance <input checked="" type="checkbox"/> N/A<br>Remarks: _____  |  |  |
| 3.  | <b>Monitoring Wells</b> (within surface area of landfill)<br><input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition   |  |  |

|   |  |                              |
|---|--|------------------------------|
| <input type="checkbox"/> Evidence of leakage at penetration<br>Remarks: _____   | <input type="checkbox"/> Needs maintenance | <input type="checkbox"/> N/A |
| 4. <b>Extraction Wells Leachate</b><br><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition<br><input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs maintenance <input checked="" type="checkbox"/> N/A<br>Remarks: _____ |  |                              |
| 5. <b>Settlement Monuments</b> <input type="checkbox"/> Located <input type="checkbox"/> Routinely surveyed <input checked="" type="checkbox"/> N/A<br>Remarks: _____   |  |                              |
| <b>E. Gas Collection and Treatment</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |  |                              |
| 1. <b>Gas Treatment Facilities</b><br><input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance<br>Remarks: _____   |  |                              |
| 2. <b>Gas Collection Wells, Manifolds and Piping</b><br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance<br>Remarks: _____  |  |                              |
| 3. <b>Gas Monitoring Facilities</b> (e.g., gas monitoring of adjacent homes or buildings)<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A<br>Remarks: _____  |  |                              |
| <b>F. Cover Drainage Layer</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |  |                              |
| 1. <b>Outlet Pipes Inspected</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks: _____  |  |                              |
| 2. <b>Outlet Rock Inspected</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks: _____   |  |                              |
| <b>G. Detention/Sedimentation Ponds</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A   |  |                              |
| 1. <b>Siltation</b> Area extent: _____    Depth: _____ <input type="checkbox"/> N/A<br><input type="checkbox"/> Siltation not evident<br>Remarks: _____   |  |                              |
| 2. <b>Erosion</b> Area extent: _____    Depth: _____<br><input type="checkbox"/> Erosion not evident<br>Remarks: _____  |  |                              |
| 3. <b>Outlet Works</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks: _____  |  |                              |
| 4. <b>Dam</b> <input type="checkbox"/> Functioning <input type="checkbox"/> N/A<br>Remarks: _____   |  |                              |
| <b>H. Retaining Walls</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A   |  |                              |

|  |   |   |  |
|--|---|---|--|
| 1.   | <b>Deformations</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Deformation not evident |
| Horizontal displacement: _____   |   | Vertical displacement: _____                        |  |
| Rotational displacement: _____   |   |   |  |
| Remarks: _____   |   |   |  |
| 2.   | <b>Degradation</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Degradation not evident |
| Remarks: _____   |   |   |  |
| <b>I. Perimeter Ditches/Off-Site Discharge</b>   |   | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Siltation</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Siltation not evident   |
| Area extent: _____   |   | Depth: _____  |  |
| Remarks: _____   |   |   |  |
| 2.   | <b>Vegetative Growth</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> N/A                     |
| <input type="checkbox"/> Vegetation does not impede flow   |   |   |  |
| Area extent: _____   |   | Type: _____   |  |
| Remarks: _____   |   |   |  |
| 3.   | <b>Erosion</b>  | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Erosion not evident     |
| Area extent: _____   |   | Depth: _____  |  |
| Remarks: _____   |   |   |  |
| 4.   | <b>Discharge Structure</b>  | <input type="checkbox"/> Functioning                | <input type="checkbox"/> N/A                     |
| Remarks: _____   |   |   |  |
| <b>VIII. VERTICAL BARRIER WALLS</b>  |   | <input type="checkbox"/> Applicable                 | <input checked="" type="checkbox"/> N/A          |
| 1.   | <b>Settlement</b>   | <input type="checkbox"/> Location shown on site map | <input type="checkbox"/> Settlement not evident  |
| Area extent: _____   |   | Depth: _____  |  |
| Remarks: _____   |   |   |  |
| 2.   | <b>Performance Monitoring</b>   | Type of monitoring: _____                           |  |
| <input type="checkbox"/> Performance not monitored   |   |   |  |
| Frequency: _____   |   | <input type="checkbox"/> Evidence of breaching      |  |
| Head differential: _____   |   |   |  |
| Remarks: _____   |   |   |  |
| <b>IX. GROUNDWATER/SURFACE WATER REMEDIES</b>  |   | <input checked="" type="checkbox"/> Applicable      | <input type="checkbox"/> N/A                     |
| <b>A. Groundwater Extraction Wells, Pumps and Pipelines</b>  |   | <input checked="" type="checkbox"/> Applicable      | <input type="checkbox"/> N/A                     |
| 1.   | <b>Pumps, Wellhead Plumbing and Electrical</b>                                  |   |  |
| <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> All required wells properly operating <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A           |   |   |  |
| Remarks: _____   |   |   |  |
| 2.   | <b>Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances</b> |   |  |
| <input type="checkbox"/> Good condition <input checked="" type="checkbox"/> Needs maintenance  |   |   |  |
| Remarks: <u>Due to the age of the extraction system and the current status of the contamination, a new remedy is replacing the current remedy. As part of the new remedy, all process equipment and piping</u> |   |   |  |

|   |  |
|---|--|
| associated with the current treatment systems will be decontaminated and decommissioned.  |  |
| <b>3. Spare Parts and Equipment</b><br><input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided<br>Remarks: _____   |  |
| <b>B. Surface Water Collection Structures, Pumps and Pipelines</b> <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A  |  |
| <b>1. Collection Structures, Pumps and Electrical</b><br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance<br>Remarks: _____   |  |
| <b>2. Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances</b><br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance<br>Remarks: _____  |  |
| <b>3. Spare Parts and Equipment</b><br><input type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided<br>Remarks: _____   |  |
| <b>C. Treatment System</b> <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A  |  |
| <b>1. Treatment Train</b> (check components that apply)<br><input type="checkbox"/> Metals removal <input checked="" type="checkbox"/> Oil/water separation <input checked="" type="checkbox"/> Bioremediation<br><input type="checkbox"/> Air stripping <input checked="" type="checkbox"/> Carbon adsorbers<br><input checked="" type="checkbox"/> Filters: <u>Sand and carbon filtration units.</u><br><input checked="" type="checkbox"/> Additive (e.g., chelation agent, flocculent): <u>Ferric Chloride, Sodium Hydroxide, Sulfuric Acid, Hydrogen Peroxide</u><br><input type="checkbox"/> Others: _____<br><input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance<br><input checked="" type="checkbox"/> Sampling ports properly marked and functional<br><input checked="" type="checkbox"/> Sampling/maintenance log displayed and up to date<br><input type="checkbox"/> Equipment properly identified<br><input checked="" type="checkbox"/> Quantity of groundwater treated annually: <u>3.1 million gallons treated in 2018.</u><br><input type="checkbox"/> Quantity of surface water treated annually: _____<br>Remarks: _____ |  |
| <b>2. Electrical Enclosures and Panels</b> (properly rated and functional)<br><input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance<br>Remarks: _____  |  |
| <b>3. Tanks, Vaults, Storage Vessels</b><br><input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs maintenance<br>Remarks: _____  |  |
| <b>4. Discharge Structure and Appurtenances</b><br><input checked="" type="checkbox"/> N/A <input type="checkbox"/> Good condition <input type="checkbox"/> Needs maintenance   |  |

|   |   |  |  |
|---|---|--|--|
| Remarks: _____  |   |  |  |
| 5.  | <b>Treatment Building(s)</b><br><input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair<br><input checked="" type="checkbox"/> Chemicals and equipment properly stored<br>Remarks: _____   |  |  |
| 6.  | <b>Monitoring Wells</b> (pump and treatment remedy)<br><input checked="" type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input checked="" type="checkbox"/> Good condition<br><input checked="" type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input type="checkbox"/> N/A<br>Remarks: _____ |  |  |
| <b>D. Monitoring Data</b>   |   |  |  |
| 1.  | <b>Monitoring Data</b><br><input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality   |  |  |
| 2.  | <b>Monitoring Data Suggests:</b><br><input checked="" type="checkbox"/> Groundwater plume is effectively contained <input type="checkbox"/> Contaminant concentrations are declining  |  |  |
| <b>E. Monitored Natural Attenuation</b>   |   |  |  |
| 1.  | <b>Monitoring Wells</b> (natural attenuation remedy)<br><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition<br><input type="checkbox"/> All required wells located <input type="checkbox"/> Needs maintenance <input checked="" type="checkbox"/> N/A<br>Remarks: _____  |  |  |
| <b>X. OTHER REMEDIES</b>  |   |  |  |
| If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.   |   |  |  |
| <b>XI. OVERALL OBSERVATIONS</b>   |   |  |  |
| <b>A. Implementation of the Remedy</b>  |   |  |  |
| Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions).<br><u>Monitoring data indicate the remedy is not functioning as intended. The 2016 ROD Amendment describes the modified remedy which is currently in the design phase.</u> |   |  |  |
| <b>B. Adequacy of O&amp;M</b>   |   |  |  |
| Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.<br><u>Current O&amp;M activities are being implemented appropriately. Due to the age of the system, equipment is likely nearing the end of its design life. The new remedy is in the design phase.</u>                                       |   |  |  |
| <b>C. Early Indicators of Potential Remedy Problems</b>   |   |  |  |
| Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.<br><u>The current remedy remains protective and is currently in a containment phase until the new remedy is implemented. The new remedy will provide long-term protectiveness.</u>                                    |   |  |  |
| <b>D. Opportunities for Optimization</b>  |   |  |  |
| Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.<br><u>Implementation of the 2016 ROD Amendment remedy along with a future decision on groundwater will provide long-term protectiveness at the Site.</u>   |   |  |  |

## APPENDIX E – HISTORICAL AND SITE INSPECTION PHOTOS

*BEFORE – Pre-Cleanup: 1970*



Historical Wood Treating Operations

*AFTER – Site Inspection Photos: November 2019*



Superfund site sign at site entrance



Warning signs at second entrance gate



Creosote Branch Creek



Fencing along Creosote Branch Creek



Fire Water Pond



PLTS building



Part of PLTS



Part of PLTS



Vac box storage for NAPL outside of PLTS



Tar Mat Ash Disposal Area, facing east



Well S11, which is part of a recovery trench



Waste Cell, facing northeast



Waste Cell, facing south



Wells SMW-1 and DMW-1



Well I-6



Former incinerator location, currently used for fire department training



Former incinerator location, currently used for fire department training

## APPENDIX F – DATA TABLES AND FIGURES

**Table F-1: Maximum Observed Concentration in Site Groundwater, by year (µg/L)<sup>2</sup>**

Table 1-2. Recovered Creosote (NAPL) Characteristics Compared with Maximum Observed Groundwater Concentrations  
American Creosote Works, Winnfield, Louisiana

| Constituent   | 1996 NAPL<br>Concentration<br>(mg/kg) | 2012 NAPL<br>Concentration<br>(mg/kg) | Maximum Observed Concentration in Site Groundwater (µg/L) |               |               |               |               |               |               |               |               |               |               |               |                |               |             |
|---|---------------------------------------|---------------------------------------|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|-------------|
|   |                                       |                                       | 2006-Wells  | 2007-Wells    | 2008-Wells    | 2009-Wells    | 2009-Influent | 2010-Wells    | 2011-Influent | 2011-Wells    | 2012-Wells    | 2013-Wells    | 2014-Wells    | 2015-Wells    | 2016-Wells (b) | 2017-Wells    | 2018-Wells  |
| Low Molecular Weight - Polycyclic Aromatic Hydrocarbons               |                                       |                                       |   |               |               |               |               |               |               |               |               |               |               |               |                |               |             |
| Acenaphthene  | 21,000                                | 21,700                                | 85,600  | 62,300        | 1,800         | 3,850         | 8,201         | 675           | 13,600        | 1,220         | 865           | 5,460         | 11,000        | 6,320         | 594,000        | 2,580         | 1,460       |
| Acenaphthylene  | 970                                   | 1,340                                 | 4,800 U   | 3,140         | 280           | 206           | 395           | 99            | 1,680         | 281           | 103           | 313           | 963 U         | 334           | 79,700         | 405           | 1,444       |
| Anthracene  | 5,400                                 | 8,580                                 | 32,500  | 18,600        | 1,100         | 1,080         | 2,820         | 107           | 5,140         | 657           | 181           | 2,810         | 4,310         | 2,650         | 298,000        | 1,190         | 317         |
| Fluoranthene  | 22,000                                | 28,700                                | 113,000   | 85,700        | 4,500         | 6,620         | 9,830         | 569           | 16,800        | 1,500         | 598           | 9,430         | 13,100        | 10,600        | 732,000        | 3,690         | 1,300       |
| Fluorene  | 14,000                                | 21,600                                | 87,700  | 69,900        | 2,200         | 3,180         | 9,520         | 573           | 13,600        | 1,980         | 601           | 5,590         | 11,200        | 6,710         | 750,000        | 2,720         | 858         |
| Naphthalene   | 70,000                                | 87,600                                | 290,000   | 304,000       | 23,000        | 18,400        | 30,800        | 12,600        | 32,200        | 21,800        | 12,300        | 19,800        | 41,000        | 35,000        | 3,710,000      | 24,100        | 18,900      |
| Phenanthrene  | 57,000                                | 64,800                                | 214,000   | 176,000       | 7,900         | 9,550         | 19,400        | 768           | 37,700        | 4,260         | 1,190         | 18,100        | 29,400        | 19,400        | 1,680,000      | 7,700         | 2,580       |
| Pyrene  | 15,000                                | 18,500                                | 55,900  | 54,300        | 2,700         | 7,670         | 4,360         | 391           | 9,660         | 1,190         | 473           | 5,790         | 13,900        | 6,480         | 494,000        | 2,910         | 774         |
| High Molecular Weight - Carcinogenic Polycyclic Aromatic Hydrocarbons |                                       |                                       |   |               |               |               |               |               |               |               |               |               |               |               |                |               |             |
| Benzo(a)anthracene  | 3,900                                 | 5,340                                 | 20,500  | 18,500        | 900           | 1,300         | 1,740         | 88.4          | 3,120         | 507           | 103           | 1,890         | 2,430         | 2,400         | 189,000        | 794           | 234         |
| Benzo(a)pyrene  | 420                                   | 2,450                                 | 11,800  | 9,880         | 430 U         | 575 J         | 748           | 48.8          | 1,550         | 353           | 69            | 1,200         | 1,450 J       | 1,450         | 118,000        | 545           | 149         |
| Benzo(b)fluoranthene  | 2,300                                 | 3,650                                 | 13,700  | 11,300        | 660           | 665 J         | 1,05          | 60.8          | 1,840         | 313           | 60            | 1,230         | 1,910 J       | 1,440         | 137,000        | 565 J         | 145 J       |
| Benzo(ghi)perylene  | 510                                   | 686                                   | 5,400 U   | 2,670         | 190 U         | 142           | 254           | 17.4          | 531 J         | 167           | 50 U          | 432           | 523           | 54,200        | 257            | 70            |             |
| Benzo(k)fluoranthene  | 1,300                                 | 1,720                                 | 8,920 J   | 8,010         | 250 U         | 610 J         | 440           | 36.1          | 744 J         | 221           | 50 U          | 915           | 963 U         | 1,120         | 58,800         | 396 J         | 103 J       |
| Chrysene  | 3,800                                 | 5,230                                 | 19,500  | 15,400        | 760           | 1,440         | 1,470         | 80.5          | 2,340         | 440           | 95            | 1,800         | 2,330 J       | 2,020         | 149,000        | 762           | 201         |
| Dibenzo(a,h)anthracene  | 260                                   | 225                                   | 5,800 U   | 1,090         | 60 U          | 62 J          | 79.7          | 7.3           | 318 J         | 100 U         | 50 U          | 400           | 963 U         | 256           | 20,000         | 200 U         | 50 U        |
| Indeno(1,2,3-cd)pyrene  | 490                                   | 876                                   | 5,000 U   | 3,070         | 180 U         | 127 J         | 253           | 17.1          | 649 J         | 151           | 50 U          | 445           | 1,050         | 494           | 49,100         | 223           | 64          |
| Others  |                                       |                                       |   |               |               |               |               |               |               |               |               |               |               |               |                |               |             |
| Bis(2-ethylhexyl)phthalate  | 100                                   | 1,900                                 | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | 100 U         | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | 963 U         | Not Tracked   | Not Tracked    | Not Tracked   | Not Tracked |
| 2-Methylnaphthalene   | 14,000                                | 22,800                                | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | 10,800        | Not Tracked   | Not Tracked   | Not Tracked   | 11,900        | 1,970         | 878,000        | 3,650         |             |
| Benzene   | Not Measured                          | 33 U                                  | 362   | 330           | 327           | 271           | 20 U          | 496           | Not Tested    | 430           | 620           | 458 J         | 398 J         | Not Tracked   | 430            | 236           |             |
| Dibenzofuran  | 11,000                                | 16,000                                | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | Not Tracked   | 8,410         | 3,260         | 484,000        | 2,440         |             |
| Pentachlorophenol   | 1,100                                 | 219                                   | 285   | 360           | 110 J         | 144           | 500 U         | 184           | 761 U         | 115           | 87.3 J        | 286           | 4,880         | 5,960         | 13,000         | 3,670         |             |
| Specific Gravity  | 1.0 – 1.2 (1.03 <sup>3</sup> )        | 1.07                                  | Not Monitored   | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored | Not Monitored  | Not Monitored |             |

Notes:  
 \* Recovered oil testing performed in November 2007 revealed a specific gravity of 1.03.  
 \* The maximum observed concentrations were detected at well SMW-2, and are likely biased high because of the presence of NAPL entrained in the sample, as evidenced by April 2017 sampling observations.  
 > = greater than  
 µg/L = microgram per liter  
 B = analyte found in associated method blank  
 BTU/lb = British thermal unit per pound  
 °F = degree Fahrenheit  
 J = Analyte was positively identified; the result is estimated  
 L = reported concentration biased low  
 mg/kg = milligram per kilogram  
 NAPL = nonaqueous phase liquid  
 U = Analyte was analyzed for, but not detected

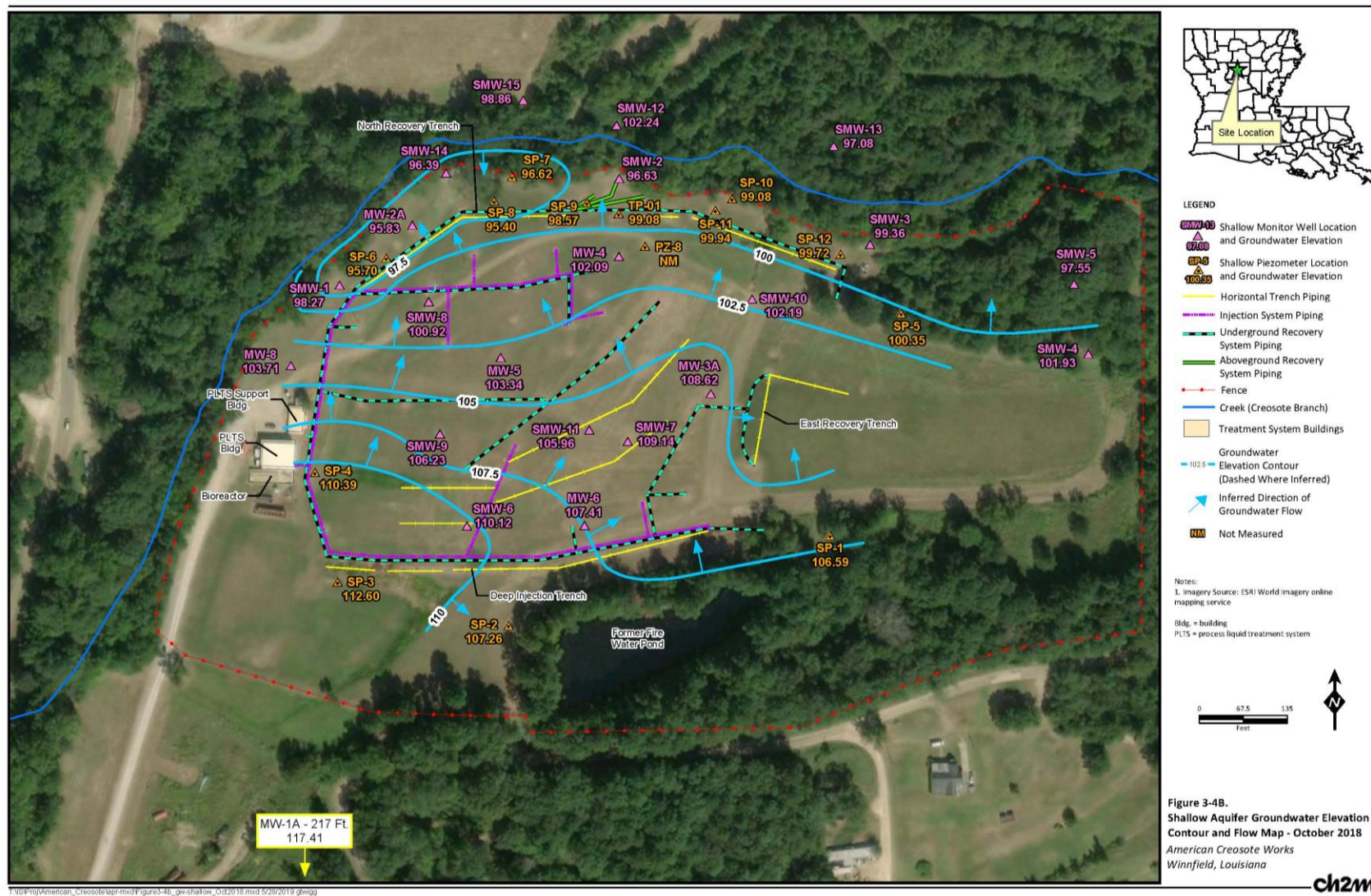
<sup>2</sup> Table 1-2 of the Year 2018 Annual Operations Report Version No. 1.1.

**Table F-2: Creosote Branch Surface Water Carcinogenic PAH and BaP TEQ Concentration (µg/L)<sup>3</sup>**

| Constituent   | 4/2014 | 10/2014 | 4/2015 | 4/2016    | 10/2016 | 4/2017    | 10/2017 | 4/2018  | 10/2018 |
|---|--------|---------|--------|-----------|---------|-----------|---------|---------|---------|
| <i>SW-1</i>   |        |         |        |           |         |           |         |         |         |
| Benzo(a)anthracene  | 0.1 U  | 0.1 UJ  | 0.1 U  | 0.1 U     | 0.1 U   | 0.0105 U  | 0.1 U   | 0.048U  | 0.1 U   |
| Benzo(a)pyrene  | 0.1 U  | 0.1 UJ  | 0.1 U  | 0.051 LJ  | 0.1 U   | 0.0032 U  | 0.1 U   | 0.048 U | 0.1 UJ  |
| Benzo(b)fluoranthene  | 0.1 U  | 0.1 UJ  | 0.1 U  | 0.055 LJ  | 0.1 U   | 0.021 U   | 0.1 U   | 0.048 U | 0.1 U   |
| Benzo(k)fluoranthene  | 0.1 U  | 0.1 UJ  | 0.1 U  | 0.043 LJ  | 0.1 U   | 0.105 U   | 0.1 U   | 0.048 U | 0.1 U   |
| Chrysene  | 0.1 U  | 0.1 UJ  | 0.1 U  | 0.1 U     | 0.1 U   | 0.105 U   | 0.1 U   | 0.048 U | 0.1 UJ  |
| Dibenzo(a,h)anthracene  | 0.1 U  | 0.1 UJ  | 0.1 U  | 0.1 U     | 0.1 U   | 0.0032 U  | 0.1 U   | 0.048 U | 0.1 UJ  |
| Indeno(1,2,3-cd)pyrene  | 0.1 U  | 0.1 UJ  | 0.1 U  | 0.1 U     | 0.1 U   | 0.021 U   | 0.1 U   | 0.048 U | 0.1 UJ  |
| BaP TEQ   | 0 U    | 0 UJ    | 0 U    | 0.057 LJ  | 0 U     | 0 U       | 0 U     | 0 U     | 0 U     |
| <i>SW-21</i>  |        |         |        |           |         |           |         |         |         |
| Benzo(a)anthracene  | 0.1 U  | 0.1 U   | 0.1 U  | 0.012 LJ  | 0.1 U   | 0.0104 UJ | 0.1 U   | 0.05 U  | 0.1 U   |
| Benzo(a)pyrene  | 0.1 U  | 0.1 U   | 0.1 U  | 0.1 U     | 0.1 U   | 0.0031 UJ | 0.1 U   | 0.05 U  | 0.1 U   |
| Benzo(b)fluoranthene  | 0.1 U  | 0.1 U   | 0.1 U  | 0.1 U     | 0.1 U   | 0.0207 UJ | 0.1 U   | 0.05 U  | 0.1 U   |
| Benzo(k)fluoranthene  | 0.1 U  | 0.1 U   | 0.1 U  | 0.1 U     | 0.1 U   | 0.104 UJ  | 0.1 U   | 0.05 U  | 0.1 U   |
| Chrysene  | 0.1 U  | 0.1 U   | 0.1 U  | 0.009 LJ  | 0.1 U   | 0.104 UJ  | 0.1 U   | 0.05 U  | 0.1 U   |
| Dibenzo(a,h)anthracene  | 0.1 U  | 0.1 U   | 0.1 U  | 0.1 U     | 0.1 U   | 0.0031 UJ | 0.1 U   | 0.05 U  | 0.1 U   |
| Indeno(1,2,3-cd)pyrene  | 0.1 U  | 0.1 U   | 0.1 U  | 0.1 U     | 0.1 U   | 0.0207 UJ | 0.1 U   | 0.05 U  | 0.1 U   |
| BaP TEQ   | 0 U    | 0 U     | 0 U    | 0.0012 LJ | 0 U     | 0 UJ      | 0 U     | 0 U     | 0 U     |
| <i>Notes:</i><br>J = Analyte was positively identified; the result is estimated<br>U = Analyte was analyzed for, but not detected<br>LJ = Analyte was positively identified, the result is estimated and the associated numerical value may be biased low.<br>UJ = Analyte was analyzed for but not detected; the detection limit is estimated.<br><br>µg/L = microgram per liter |        |         |        |           |         |           |         |         |         |

<sup>3</sup> From Table 3-9A of the Year 2018 Annual Operations Report Version No. 1.1 and 3-9A of the Year 2016 Annual Operations Report Version No. 1.1.

Figure F-1: Shallow Aquifer Groundwater Elevation Contour and Flow Map<sup>4</sup>



<sup>4</sup> Figure 3-4B from the 2018 Annual Report.

## APPENDIX G – DETAILED ARARS REVIEW

CERCLA Section 121(d)(1) requires that Superfund remedial actions attain “a degree of cleanup of hazardous substance, pollutants, and contaminants released into the environment and control of further release at a minimum which assures protection of human health and the environment.” The remedial action must achieve a level of cleanup that at least attains those requirements that are legally applicable or relevant and appropriate. In performing the FYR for compliance with ARARs, only those ARARs that address the protectiveness of the remedy are reviewed.

The 2016 ROD Amendment identified cleanup levels to address risk for current/future recreators, future commercial/industrial workers and future construction workers. The cleanup levels for soils are for a commercial/industrial scenario and achieve a  $1 \times 10^{-5}$  cancer risk level: the probability of 1 individual in 100,000 developing cancer due to exposure to the individual contaminant. The  $1 \times 10^{-5}$  levels are consistent with Section 2.14 the Louisiana Department of Environmental Quality Risk Evaluation/Corrective Action Program. The immobile and mobile NAPL at the Site is considered a principal threat waste and therefore there are no cleanup levels for the NAPL. The NAPL will be addressed by implementation of the ISS which will eliminate/reduce its mobility.

This FYR reviews the ARARs in the 2016 ROD Amendment because the 2016 ROD Amendment replaced the remedy described in the 1993 ROD with a new remedy.

### *Groundwater*

The ARARs identified for this Site are Louisiana AWQC for benzene and ethylbenzene and federal AWQCs for pentachlorophenol for surficial groundwater. In the absence of AWQCs, EPA selected health-based levels, which are evaluated further in Appendix H. The review of the current AWQCs show that there have been no changes in Louisiana’s AWQCs for benzene and ethylbenzene in the Louisiana’s May 2016 update of the AWQCs.<sup>5</sup> There has been no change in the federal AWQCs for pentachlorophenol since the signing of the 2016 ROD Amendment.<sup>6</sup>

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<sup>5</sup> Located at: [https://deg.louisiana.gov/assets/docs/Legal\\_Affairs/33v09-201605-Water-Quality.pdf](https://deg.louisiana.gov/assets/docs/Legal_Affairs/33v09-201605-Water-Quality.pdf), accessed 12/10/2019.

<sup>6</sup> Located at: <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>, accessed 12/10/2019.

## APPENDIX H – SCREENING-LEVEL RISK REVIEW

### Soil

The 2016 ROD Amendment identified soil remedial levels based on ecological receptors and human receptors. Table H-1 shows a comparison of the 2016 ROD Amendment remedial level based on ecological receptors with the current ecological screening level. The remedial level identified in the 2016 ROD Amendment remains valid as the ecological screening level has not changed. Table H-2 shows a regional screening level (RSL) human health risk review for soil contaminants with remedial levels based on human receptors. The human health-based remedial levels also remain valid because they are equivalent to cancer risks that fall within or below EPA's risk management range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$ ; in addition, the remedial levels are equal to or below the target noncancer hazard quotient (HQ) of 1.

**Table H-1: Screening-Level Ecological Risk Review of Soil Remedial Goals**

| COC   | 2016 ROD Amendment Remedial Level (mg/kg) | Ecological Soil Screening Level <sup>a</sup> (mg/kg) | Change    |
|---|---|--|-----------|
| HPAHs   | 18  | 18   | No change |
| <i>Notes:</i><br>a. EPA's Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs) Interim Final, June 2007, located at: <a href="https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-263b.pdf">https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-263b.pdf</a> (accessed 12/11/2019).<br>mg/kg = milligrams per kilogram<br>HPAH – High molecular weight polycyclic aromatic hydrocarbons |   |  |           |

**Table H-2: Screening-Level Human Risk Review of Soil Remedial Goals**

| COC   | 2016 ROD Amendment Remedial Level (mg/kg) | Commercial/Industrial RSL <sup>a</sup> (mg/kg) |          | Cancer Risk <sup>b</sup> | Noncancer HQ <sup>c</sup> |
|---|---|--|----------|--------------------------|---------------------------|
|   |   | $1 \times 10^{-6}$ Risk                        | HQ = 1.0 |                          |                           |
| 1,1-Biphenyl  | 200                                       | 410  | 200      | $4 \times 10^{-7}$       | 1                         |
| 2-Methylnaphthalene   | 3,000                                     | --   | 3,000    | --                       | 1                         |
| BaP TEQ   | 2.1                                       | 2.1  | 220      | $1 \times 10^{-6}$       | 0.01                      |
| Dioxin TEQ  | 0.00073                                   | 0.000022                                       | 0.00072  | $3 \times 10^{-5}$       | 1                         |
| Naphthalene   | 170                                       | 17   | 590      | $1 \times 10^{-5}$       | 0.3                       |
| Pentachlorophenol   | 40  | 4  | 2,800    | $1 \times 10^{-5}$       | 0.01                      |
| <i>Notes:</i><br>a. Current EPA RSLs, dated 2019, are available at <a href="https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables">https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables</a> (accessed 12/11/2019).<br>b. The cancer risks were calculated using the following equation, based on the fact that RSLs are derived based on $1 \times 10^{-6}$ risk: cancer risk = (cleanup level ÷ cancer-based RSL) $\times 10^{-6}$ .<br>c. The noncancer HQ was calculated using the following equation: HQ = cleanup level ÷ noncancer-based RSL.<br>HQ = hazard quotient<br>-- = not applicable; toxicity criteria not established<br>mg/kg = milligrams per kilogram |   |  |          |                          |                           |

### Groundwater

EPA identified remedial levels for the surficial aquifer in the 2016 ROD Amendment based on the protection of aquatic receptors and secondary-contact recreation exposure in Creosote Branch Creek. The selected remedial level was the lower value of the federal AWQC (National Recommended Water Quality Criteria – Aquatic Life Table) and Louisiana AWQC (Table 1 – Numerical Criteria for Specific Toxic Substances, Title 33, Part IX, Subpart 1). In the absence of AWQCs, EPA selected ecological screening levels, obtained from Texas Commission on Environmental Quality. Table H-3 evaluates ecological risk-based remedial levels for shallow aquifer COCs. Only three COCs have screening levels that are now more stringent. The 2016 ROD Amendment

remedy has not yet been implemented; these values may need to be reviewed to determine if any changes are needed.

Only two surficial aquifer COCs, acenaphthylene and BaP TEQ did not have established surface water criteria. The remedial levels in the 2016 ROD Amendment for these two COCs were based on a recreational receptor using exposure assumptions presented in EPA's 2014 risk assessment for the Site. EPA has not established toxicity values for acenaphthylene. Acenaphthylene is structurally similar to acenaphthene, which often is used as a surrogate. Acenaphthene has not been shown to be carcinogenic, and the noncancer toxicity value (0.06 mg/kg/day) has not changed since 2014. A current review of toxicity values for BaP shows that the cancer slope factor in 2019 is less stringent (1.0 mg/kg/day-1) than the value available in 2014 (7.3 mg/kg/day-1). Therefore, the remedial level remains valid for acenaphthylene and BaP.

**Table H-3: Evaluation of Ecological Risk-Based Remedial Levels for Shallow Aquifer COCs**

| COC   | 2016 ROD Amendment Remediation Levels for Process and Non-Process Area DUs (µg/L) <sup>a</sup> | Current Ecological Screening Value (µg/L) <sup>b</sup> | Change          |
|---|--|--|-----------------|
| 1,1-Biphenyl  | 14   | 14   | None            |
| 1-Methylnaphthalene   | 2.1  | 2.1  | None            |
| 2-Methylnaphthalene   | 63   | 63   | None            |
| 3&4-Methylphenol (m&p-Cresol)   | 272  | 272  | None            |
| Acenaphthene  | 23   | 23   | None            |
| Anthracene  | 0.30   | 0.0645 <sup>c</sup>                                    | More stringent  |
| Benzo(a)anthracene  | 35   | 0.97 <sup>c</sup>                                      | More stringent  |
| Benzo(a)pyrene  | 0.014  | 0.014  | None            |
| Chrysene  | 7  | - <sup>d</sup>   | Value withdrawn |
| Dibenz(a,h)anthracene   | 5  | 0.01 <sup>c</sup>                                      | More stringent  |
| Dibenzofuran  | 94   | 94   | None            |
| Fluoranthene  | 6.2  | 6.2  | None            |
| Naphthalene   | 250  | 250  | None            |
| Phenanthrene  | 30   | 30   | None            |
| Pyrene  | 7  | 7  | None            |
| Xylenes   | 1,340  | 1,340  | None            |
| <p><i>Notes:</i></p> <p>a. The primary source cited in the 2016 ROD Amendment for the surficial groundwater cleanup goals was the Texas Commission on Environmental Quality (TCEQ). 2006. Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised). January 2006 except where noted below.</p> <p>b. Texas Risk Reduction Program (TRRP) Protective Concentrations – Freshwater Chronic Benchmarks updated by the TRRP in August 2019 <a href="http://www.tceq.texas.gov/assets/public/remediation/eco/RG263b_Benchmarks.xlsx">http://www.tceq.texas.gov/assets/public/remediation/eco/RG263b_Benchmarks.xlsx</a> (Accessed 12/12/2019).</p> <p>c. The TRRP protective concentration was updated in 2019 and was derived by TCEQ using the LC<sub>50</sub> approach in accordance with the Texas Surface Water Quality Standards 30 TAC 307.6(c)(7).</p> <p>d. Value removed by TCEQ due to lack of sufficient scientific literature to support development of a value.</p> |  |  |                 |

Due to the presence of volatile compounds in shallow groundwater and two buildings (the PLTS building and the PLTS support building) on a portion of the Site, this FYR evaluated the vapor intrusion exposure pathway. Six of the shallow groundwater COCs (benzene; 1,1-bipheynl; ethylbenzene, naphthalene, toluene and total xylenes) are considered sufficiently volatile and were included in the vapor intrusion evaluation. To determine if vapor intrusion is a completed pathway to workers in these buildings, the most current VOC data (October 2018) from shallow monitoring wells closest to these buildings were used. SP-4 and MW-8 are the closest wells to these two buildings but are not analyzed for four of the COCs (benzene, toluene, ethylbenzene and total xylenes). Thus, the next closest wells SMW-1 and SMW-9 were considered for these four COCs. The maximum concentrations were detected in SMW-9 in 2016. SMW-9 is about 195 feet from the two buildings while SP-4 and MW-8 are about 30 feet and 60 feet, respectively, from the two buildings. The remaining two volatile COCs (1,1-biphenyl and naphthalene) were below detection in SP-4 and MW-8; thus, to be conservative, the highest detection limits were used in the vapor intrusion screening level calculator using standard default exposure assumptions for a commercial/industrial worker. As shown in Table H-4, the screening-level vapor intrusion risk evaluation shows that the cumulative cancer risk is within EPA's risk management range of  $1 \times 10^{-6}$  to  $1 \times 10^{-4}$  and the noncancer HQ is below the threshold of 1.0. Thus, the vapor intrusion exposure pathway is not a pathway of concern at these two buildings based on current site conditions.

**Table H-4: Screening-Level Vapor Intrusion Risk Evaluation of Shallow Groundwater Results**

| COC  | Groundwater Concentration (µg/L) <sup>a</sup> | Cancer Risk <sup>a</sup> | Non-cancer HQ <sup>a</sup> |
|--|---|--------------------------|----------------------------|
| 1,1-Biphenyl   | 0.1 U (SP-4, October 2018)                    | NA                       | 0.0007                     |
| Benzene  | 158 J (SMW-9, 2016)                           | $2 \times 10^{-5}$       | 0.3                        |
| Ethylbenzene   | 58.9 (SMW-9, 2016)                            | $4 \times 10^{-6}$       | 0.004                      |
| Naphthalene  | 0.1 U (SP-04, October 2018)                   | $5 \times 10^{-9}$       | 0.0001                     |
| Toluene  | 102 (SMW-9, 2016)                             | NA                       | 0.001                      |
| Xylene   | 128.4 (SMW-9, 2016)                           | NA                       | 0.08                       |
| Cumulative Total   |   | $3 \times 10^{-5}$       | 0.4                        |
| <p><i>Notes:</i></p> <p>a. Risk and hazard quotient calculated using EPA's November 2019 VISL calculator (<a href="https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator">https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator</a>) assuming a commercial/industrial exposure and default groundwater temperature of 25 degrees Celsius.</p> <p>µg/L = micrograms per liter</p> <p>J = Analyte was positively identified; the result is estimated.</p> <p>U = Analyte was below detection.</p> <p>NA = Not applicable</p> <p><i>Source:</i> Year 2018 Annual Operations Report Version No. 1.1, Table 3-5B, Table 3-6 and Table 3-7. August 2019.</p> |   |                          |                            |

## APPENDIX I – INTERVIEW FORMS

| AMERICAN CREOSOTE WORKS, INC. (WINNFIELD PLANT) SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM |  |
|---|--|
| <b>Site Name:</b> American Creosote Works, Inc. (Winnfield Plant)                                 |  |
| <b>EPA ID:</b> LAD000239814   |  |
| <b>Interviewer name:</b>  | <b>Interviewer affiliation:</b>          |
| <b>Subject name:</b> Michael A. Hebert  | <b>Subject affiliation:</b> EPA Region 6 |
| <b>Subject contact information:</b> 214-665-8315 hebert.michael@epa.gov                           |  |
| <b>Interview date:</b> November 8, 2019   | <b>Interview time:</b>                   |
| <b>Interview location:</b>  |  |
| <b>Interview format (circle one):</b> In Person      Phone      Mail <u>Email</u> Other:          |  |
| <b>Interview category:</b> EPA Remedial Project Manager   |  |

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The treatment system continues to experience frequent and sometimes catastrophic failures due to its age (i.e., ~25 years). This will continue to increase operational costs. However, the system continues to prevent site contamination from migrating to Creosote Branch Creek, therefore, it is been successful at providing containment of the groundwater contamination. Cleanup progress remains slow mainly due to the inherent difficulties of extracting the creosote contamination from the subsurface.

With the issuance of the 2016 Record of Decision Amendment and subsequent issuance of a Conveyance Notification, the southern portion of the site is now being used by a joint venture between the Winn Parish Fire Department and the City of Winnfield Fire Department for fire training activities.

2. What have been the effects of this Site on the surrounding community, if any?

There has been no interest from the community in activities at the site.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities since the implementation of the cleanup?

There have been no complaints or violations related to the site that required a response by the U.S. EPA. The site did experience two break ins where some items (e.g, tools) were taken and some vandalism occurred. The site operator coordinated with the City of Winnfield Police Department. As a result, upgrades to the security were made in 2019.

4. What is your assessment of the current performance of the remedy in place at the Site?

Since the last five year review, several activities have been performed which together indicate that remediation at the site is progressing very slowly or is not proceeding effectively. The 2016 Record of Decision Amendment describes the new remedy which would provide a much more permanent remedy for the site. U.S EPA is currently developing a Remedial Design for the new remedy, after which, implementation of the new remedy will be dependent upon funding availability.

5. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

Most of the site is currently controlled by U.S. EPA's contractor, Jacobs Engineering. Thus activities at the site are controlled in order to prevent any exposure to contaminants by the general public. The Winn Parish Police Jury recorded a Conveyance Notification which describes the acceptable uses of the southern portion of the site. With the finding of contamination to the east of the site, US EPA will have to work with the land owner to place proper institutional controls on that property.

6. Are you aware of any community concerns regarding the Site or the operation and management of its remedy? If so, please provide details.

There has been no interest from the community in activities at the site.

Since the last five year review, operations at the site have become more troublesome, mainly due to the aging of the treatment plant. There have been more frequent and more catastrophic equipment failures due to the age of the treatment plant equipment. In addition, fine solids have been observed in the treatment system in the last few years. These fine solids cause problems within various sections of the treatment plant and also cause problems with the final recovered NAPL. U.S. EPA and Jacobs Engineering are currently working on solutions to rectify the fine solids issue. Plant maintenance in general has become more extensive since the last five year review.

7. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

The 2016 new selected remedy should eliminate operational costs and enhance the reuse potential of the site. However, the implementation of the remedy will be dependent upon agency remedial action priorities and the availability of funding.

| AMERICAN CREOSOTE WORKS, INC. (WINNFIELD PLANT) SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM    |                           |
|--|---------------------------|
| Site Name: American Creosote Works, Inc. (Winnfield Plant)   |                           |
| EPA ID: LAD000239814   |                           |
| Interviewer name:  | Interviewer affiliation:  |
| Subject name: Keith Horn   | Subject affiliation: LDEQ |
| Subject contact information: <a href="mailto:Keith.Horn@LA.gov">Keith.Horn@LA.gov</a> (225) 223-1216 |                           |
| Interview date: 10/02/2019   | Interview time: 2:00 PM   |
| Interview location:  |                           |
| Interview format (circle one): In Person      Phone      Mail <b>Email</b> Other:                    |                           |
| Interview category: <b>State Agency</b>  |                           |

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

As Remediation Team Leader (TL) for the LDEQ, I feel that the project is currently being operated and managed well. The new Proposed Plan for In-Situ Stabilization (ISS) is a good decision, as it will eliminate the long term remediation of the site and facilitate its reuse. A portion of the site owned by Winn Parish has already been brought back into productive use as a Fire Department training area.

2. What is your assessment of the current performance of the remedy in place at the Site?

The current remedy involving groundwater pump and treat is ineffective, costly, and may never meet the remedial goals. The new Proposed Plan for ISS should eliminate the majority of the site issues, and has been accepted by all stakeholders.

3. Are you aware of any complaints or inquiries regarding site-related environmental issues or remedial activities from residents in the past five years?

I am not aware of any such complaints or concerns. There was interest from the community when the public participation phase of the new Proposed Plan for ISS was conducted, but it has been accepted by all stakeholders.

4. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

As the support agency to EPA Region 6, the LDEQ has made inspections of the site, reviewed and responded to numerous documents, participated in public meetings, met with city and parish officials, and been involved in many types of communications in the last five years.

5. Are you aware of any changes to state laws that might affect the protectiveness of the Site's remedy?

I am not aware of any such changes.

6. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues?

I am not fully comfortable with current controls. Institutional Controls in the form of Conveyance Notice is still needed on the property owned by the Roy O Martin Company. Implementation of the new Proposed Plan may necessitate the imposition of new or updated Institutional Controls.

On the positive side, Institutional Controls in the form of Conveyance Notice was successfully imposed on the portion of the site owned by Winn Parish in 2017.

7. Are you aware of any changes in projected land use(s) at the Site?

I am not aware of any changes in land use, other than a portion of the site owned by the Winn Parish being planned for use as a Fire Department training area.

8. Do you have any comments, suggestions or recommendations regarding the management or operation of the Site's remedy?

I feel that the project is currently being operated and managed well.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

I have no objection to my name being used.

| American Creosote Works, Inc. (Winnfield Plant) SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM |  |
|---|--|
| Site Name: American Creosote Works, Inc. (Winnfield Plant)  |  |
| EPA ID: LAD000239814  |  |
| Interviewer name:   | Interviewer affiliation:                 |
| Subject name: Karen Tyler   | Subject affiliation: Secretary/Treasurer |
| Subject contact information: pj1admin@wppj.net  |  |
| Interview date: 10/04/2019  | Interview time: 10:00 A.M.               |
| Interview location: 119 W. Main Street, Winnfield, La. 71483                                      |  |
| Interview format (circle one): In Person    Phone    Mail <u>Email</u> Other:                     |  |
| Interview category: Local Government  |  |

1. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date? Yes
2. Do you feel well-informed regarding the Site's activities and remedial progress? If not, how might EPA convey site-related information in the future? Yes
3. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing? No
4. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy? No
5. Are you aware of any changes in projected land use(s) at the Site? Yes
6. Has EPA kept involved parties and surrounding neighbors informed of activities at the Site? How can EPA best provide site-related information in the future? Yes. Continue with calls & emails.
7. Do you have any comments, suggestions or recommendations regarding the project? No
8. Do you consent to have your name included along with your responses to this questionnaire in the FYR report? Yes

| American Creosote Works, Inc. (Winnfield Plant) SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM |  |
|---|--|
| Site Name: American Creosote Works, Inc. (Winnfield Plant)  |  |
| EPA ID: LAD000239814  |  |
| Interviewer name:   | Interviewer affiliation:               |
| Subject name: John Knott  | Subject affiliation: CH2M (now Jacobs) |
| Subject contact information: Office: (832) 351-6000; Email: john.knott@jacobs.com                 |  |
| Interview date: 11/19/2019  | Interview time:                        |
| Interview location: Office  |  |
| Interview format (circle one): In Person      Phone      Mail <u>Email</u> Other:                 |  |
| Interview category: O&M Contractor  |  |

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

*Response: The current treatment system is operating generally as designed. Given the age of the treatment system, overall maintenance activities have steadily increased in the treatment plant and well field. If the system is to continue to operate into the future, significant refurbishments to the plant and well field beyond normal maintenance activities will likely be required. EPA initiated a reevaluation of the current remedy and a new remedy was selected as described in the 2016 ROD Amendment. This remedy will address the creosote source area and the existing treatment plant and associated injection/extraction well/trenches will now longer be required. Once the new remedy is installed, the site should be available for restricted use by Winn Parish.*

2. What is your assessment of the current performance of the remedy in place at the Site?

*Response: The current remedy is performing generally as designed with regards to the protectiveness of human health and the environment. However, it is unlikely that the current remedy will achieve site closure within a reasonable timeframe. EPA initiated a reevaluation of the current remedy and a new remedy was selected as described in the 2016 ROD Amendment. This remedy will address the creosote source area and the existing treatment plant and associated injection/extraction wells/trenches will now longer be required. Once the new remedy is enacted, the site should be available for restricted use by Winn Parish.*

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

*Response: Site groundwater and surface water concentrations have generally remained stable over the last five years.*

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence.

*A site operator is on site 8 hours per day 5 days per week M-F and has the capability to remotely monitor the treatment plant operations when off site. On the weekends, the operator performs a daily inspection of the site and then monitors operations remotely.*

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

*Response: The extraction trench and wells have started to generate sand from the aquifer formation that when combined with creosote in the oil-water separator generates a sludge that is difficult for the treatment plant as designed to address. The process for storage of recovered creosote sludge has been modified such that the sludge is discharged to a vacuum box from the NAPL concentrator tank instead of into the NAPL storage tank. This allows for ease of offsite disposal as creosote sludge sent to the NAPL storage tank over time ends up with a peanut-butter like consistency that is difficult to pump into a truck for offsite disposal and requires costly cleanout.*

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

*Response: The primary site compressor and air dryer required replacement in October 2013 and December 2014, respectively. The granular activated carbon (GAC) and pre-GAC sand filter vessels required replacement in 2018 because of age related issues. At the same time, the pre-injection sand filter vessel was also replaced for the same reason. As described in Response No. 5, the extraction trench and wells have started to generate sand from the aquifer formation) that when combined with creosote in the oil-water separator generates a sludge that is difficult for the treatment plant as designed to address.*

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.

*Response: None*

8. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

*Response: Given the generally stable groundwater concentrations observed at the site and the large historic dataset of monitoring results, the frequency of groundwater monitoring could be reduced.*

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

*Response: Yes*

| American Creosote Works, Inc. (Winnfield Plant) SUPERFUND SITE<br>FIVE-YEAR REVIEW INTERVIEW FORM     |                          |
|---|--------------------------|
| Site Name: American Creosote Works, Inc. (Winnfield Plant)  |                          |
| EPA ID: LAD000239814  |                          |
| Interviewer name:   | Interviewer affiliation: |
| Subject name: Joseph Collins  | Subject affiliation:     |
| Subject contact information: <a href="mailto:Joseph.Collins@Jacobs.com">Joseph.Collins@Jacobs.com</a> |                          |
| Interview date: 11/19/2019  | Interview time:          |
| Interview location:   |                          |
| Interview format (circle one): In Person      Phone      Mail      Email      Other:                  |                          |
| Interview category: O&M Contractor  |                          |

1. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

The cleanup is going as it should, but newer technology methods need to be implemented. Maintenance is more frequent based on the age of the plant. Several options have been discussed with the City of Winnfield and Winn Parish Police Jury for reuse of the site.

2. What is your assessment of the current performance of the remedy in place at the Site?

We are working on a new design for clean up to finalize the project The current method would take too long to reach a final clean site.

3. What are the findings from the monitoring data? What are the key trends in contaminant levels that are being documented over time at the Site?

We are getting contaminants from the well field. It doesn't change much.

4. Is there a continuous on-site O&M presence? If so, please describe staff responsibilities and activities. Alternatively, please describe staff responsibilities and the frequency of site inspections and activities if there is not a continuous on-site O&M presence.

I am at the site Monday through Friday all day. It is checked on Saturday and Sunday. The well field is checked everyday. I maintain the PLTS to see if it is operating correctly. Mow the property, and take quarterly samples. Maintain the well field.

5. Have there been any significant changes in site O&M requirements, maintenance schedules or sampling routines since start-up or in the last five years? If so, do they affect the protectiveness or effectiveness of the remedy? Please describe changes and impacts.

The only change since I have been here is we sample more than we used to. This is to see if we are getting more from the well field.

6. Have there been unexpected O&M difficulties or costs at the Site since start-up or in the last five years? If so, please provide details.

No. There are more equipment problems than before. These are expected due to the age of the PLTS and well field.

7. Have there been opportunities to optimize O&M activities or sampling efforts? Please describe changes and any resulting or desired cost savings or improved efficiencies.

We have been able to combine different maintenance jobs into one scope to give us significant cost savings. We have combined sampling events to reduce cost.

8. Do you have any comments, suggestions or recommendations regarding O&M activities and schedules at the Site?

No. Very satisfied with everything.

9. Do you consent to have your name included along with your responses to this questionnaire in the FYR report?

Yes

# APPENDIX J – CONVEYANCE NOTIFICATIONS AND LEASE AGREEMENT

Attachment J-1: 2007 Conveyance Notification

## CONVEYANCE NOTIFICATION

APR 12 8 45 AM '07  
Kim M. Sullivan  
BY [Signature] CLERK

The Police Jury of Winn Parish Louisiana, hereby notifies the public that the property depicted in the figure attached hereto as Exhibit 1 (hereinafter "the American Creosote Superfund site" or "the Site") and described in the property description attached hereto as Exhibit 2 has been used to manage hazardous constituents and is the subject of a response action under the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). The Site was closed with hazardous constituents remaining in the soil and the groundwater above levels that allow for unrestricted exposure.

The CERCLA remedy includes but is not limited to:

- capped subsurface soils;
- injection and recovery wells;
- injection and recovery trenches;
- monitoring wells and piezometers; and
- water treatment systems.

These features are depicted on Exhibit 1. Disturbance of, destruction of, interference with, or in any way damaging or altering elements of the CERCLA remedy, or disturbing or removing soil or groundwater, without authorization from LDEQ, EPA, or their successor agencies may result in legal liability under CERCLA, the LEQA, or other laws.

The property may be subject to additional future environmental requirements under CERCLA or the Louisiana Environmental Quality Act as may be determined necessary by EPA, LDEQ, or their successor agencies. Any owner of the property may become liable jointly and severally under federal law, or *in solido* under Louisiana law, for any environmental response action required on the property.

Information regarding the American Creosote Superfund site is available in the LDEQ public record and may be obtained by contacting the LDEQ Records Manager at (225) 219-3168. Records regarding the Site may be viewed at LDEQ Headquarters, 602 N. Fifth Street, First Floor, Baton Rouge, LA 70802. Inquiries should refer to Agency Interest Number 316.

The US Environmental Protection Agency's Record of Decision for the Site is dated April 28, 1993, and bears EPA ID LAD000239814, Site ID No. 0600317.

This notification shall remain effective from the date of its filing until the property (soil and groundwater) subject to this notification can support unlimited uses and unrestricted exposures.

A true copy of the document certified by the parish clerk of court must be sent to the Remediation Services Division, Post Office Box 4314, Baton Rouge, Louisiana 70821-4314.

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Exhibit 1  
American Creosote Superfund Site Diagram

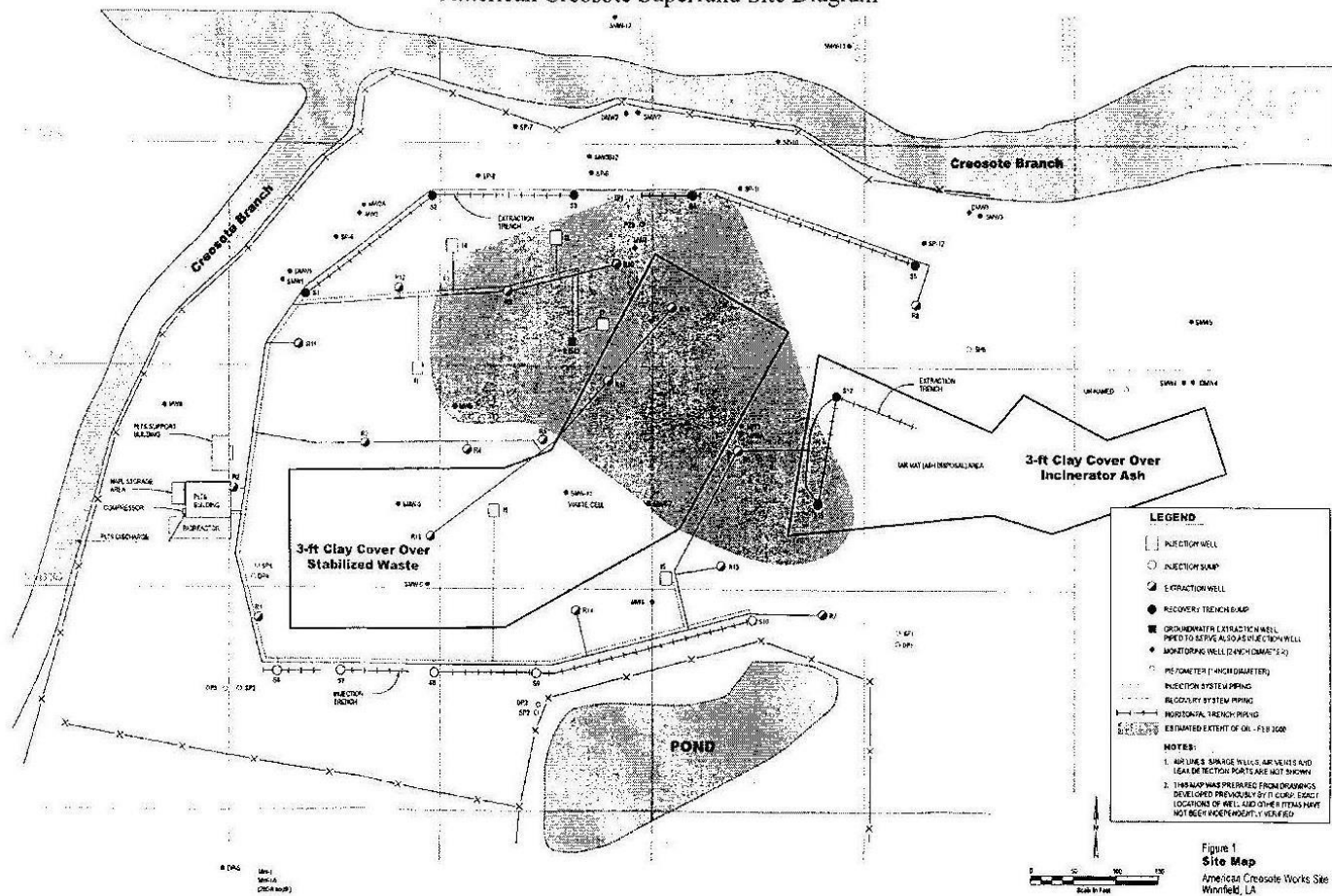


Figure 1  
Site Map  
American Creosote Works Site  
Winfield, LA

## Exhibit 2

### American Creosote Superfund Site Property Description

The site is located on 34.21 acres of land located at 1006 Front Street in Winnfield, Winn Parish, Louisiana. The legal description of the site is as follows:

Beginning 150 feet East of the Northwest Corner of SW 1/4 of SW 1/4, Section 24, Township 11 North, Range 3 West, and from said point running East 115 feet (115 yards actual) to the Northeast Corner of the West 15 acres of above described forty, thence South 186 feet, more or less to the Northeast Corner of lot sold to G. Gimber (Conveyance Book "R", page 344), thence West 65 feet, thence South 714 feet, more or less to the Northwest Corner of lot sold to W.Z. Connor (Conveyance Book "R", page 269), thence West 140 yards, more or less, to West line of the Northeast Corner of lot sold to G. Gimber (Conveyance Book "R", page 344), thence West 65 feet, thence South 714 feet, more or less to the Northwest Corner of lot sold to W.Z. Connor (Conveyance Book "R", page 269), thence West 140 yards, more or less, to West line of forty North 775 feet, more or less to Southwest Corner of lot sold to J. P. Kelsoe, et al (Conveyance Book "R", page 797), thence East 150 feet, thence North 125 feet, to place of beginning, LESS right-of-way of Arkansas Southern Railroad LESS lot sold to Louisiana Railway and Navigation Company. Also that parcel of land lying between the William J. Fartherree one acre lot described at page 470 in Book "R", Conveyance Records, and the J.E. Long two acre lot described at page 476, Conveyance Book "H", Records of Winn Parish, Louisiana, LESS lot 80 feet East and West by 100 feet North and South, sold to Winnfield Baptist Church in Southwest Corner of above described parcel, all in Southwest Quarter of Southwest Quarter (SW 1/4 of SW 1/4), Section 24, Township 11 North, Range 3 West, Winn Parish, Louisiana. Also the portion of land owned by Louisiana Pacific Lumber Company approximately described as lying east of the above described portion of land, north of E Street, south of Creosote Branch and west of the Winnfield Sewage Treatment Plant, approximately 12 acres, is part of the site.

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## Attachment J-2: 2017 Conveyance Notification

### CONVEYANCE NOTIFICATION

The Winn Parish Fire District 3, Parish of Winn, State of Louisiana and the Winn Parish Police Jury, Parish of Winn, State of Louisiana hereby notify the public that the property depicted as the Southern Decision Unit / South Parcel in the figure attached hereto as Exhibit 1

(hereinafter "south parcel") and more particularly described in the property description attached hereto as Exhibit 2 was originally part of the American Creosote Works, Inc. Superfund Site in Winnfield, Louisiana, the entirety of which has been used to manage hazardous constituents and is the subject of a response action under the federal Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA").

Future land use of the entirety of the American Creosote Works, Inc. Superfund Site in Winnfield, Louisiana, including the south parcel, is limited to industrial and commercial use. The overall cleanup strategy for the American Creosote Works, Inc. Superfund Site in Winnfield, Louisiana as a whole is to replace the current remedy with a new remedy that will remove or treat the immobile and mobile Non-Aqueous Phase Liquid (NAPL) present in the vadose zone and shallow aquifer that is a long term constant source of contamination. The selected remedy treats and/or removes the source materials constituting principal threats at the site. The Selected Remedy is comprised of Alternative 6, In-Situ Solidification/Stabilization and Targeted Hot-Spot Excavation and is estimated to cost \$25,000,000 and is described in detail in Section 18.0 (Selected Remedy) of the below-noted Record of Decision Amendment. Briefly, the major components of this alternative are:

- Excavation and off-site disposal of contaminated soils located in the eastern and northern portions of the site.
- Excavation and off-site disposal of contaminated areas along the northern and western fence line near Creosote Branch Creek. The creek excavation areas will be replaced with clean fill and constructed to maintain creek bank integrity.
- In-Situ Solidification/Stabilization (ISS) of immobile and mobile NAPL located in the soils and groundwater in the central portion of the site.
- Abandonment and decommissioning of the groundwater extraction/injection wellfield and treatment system associated with the current remedy.
- Placement of a soil cover to protect the ISS treatment area and to prevent direct contact with treatment residuals.
- Institutional Controls – The reasonably anticipated future land use is commercial/industrial, therefore, Institutional Controls (ICs) will be placed to aid in the protection from the waste left on-site.
- The groundwater (including under the waste) at the site will be monitored and a decision concerning any necessary remedial action for the groundwater will be made in the future after the effectiveness of the remedy can be determined.

The south parcel, which is the focus of this Notice of Conveyance and is currently owned by the Winn Parish Police Jury, was released by the EPA for industrial use in 1998

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(American Creosote Works Superfund Site Access Agreement Letter, EPA, 1998). The 2014 risk assessment (CH2M HILL, 2014a) determined that, based on industrial land use exposure assumptions, human health risk lies within the CERCLA acceptable risk range. The south parcel contains three groundwater monitor wells (MW-1, MW-1A, and DP-5) and ancillary structures (incinerator ash handling bins) remaining from the remedial action completed in 1998. The south parcel has been released for commercial and industrial, but not residential, use pursuant to the ROD Amendment described below.

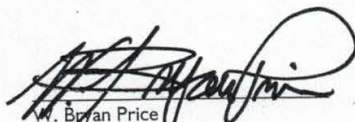
The property may be subject to additional future environmental requirements under CERCLA or the Louisiana Environmental Quality Act as may be determined necessary by EPA, LDEQ, or their successor agencies. Any owner of the property may become liable jointly and severally under federal law, or *in solido* under Louisiana law, for any environmental response action required on the property.

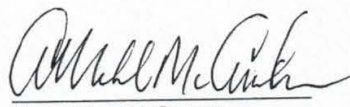
Information regarding the American Creosote Superfund site is available in the LDEQ public record and may be obtained by contacting the LDEQ Records Manager at (225) 219-3168. Records regarding the Site may be viewed at LDEQ Headquarters, 602 N. Fifth Street, First Floor, Baton Rouge, LA 70802. Inquiries should refer to Agency Interest Number 316. Information may also be obtained at the Winn Parish Library, 200 N. St. John Street, Winnfield, Louisiana 71483, telephone number (318) 292-4715.

The US Environmental Protection Agency's Record of Decision for the Site is dated April 28, 1993, and bears EPA ID LAD000239814, Site ID No. 0600317. The Amendment to that Record of Decision is dated September 19, 2016.

This notification shall remain effective from the date of its filing until the property (soil and groundwater) subject to this notification can support unlimited uses and unrestricted exposures.

A true copy of the document certified by the parish clerk of court must be sent to the LDEQ Remediation Division, Post Office Box 4314, Baton Rouge, Louisiana 70821-4314.

  
W. Bryan Price  
President  
Winn Parish Fire District 3

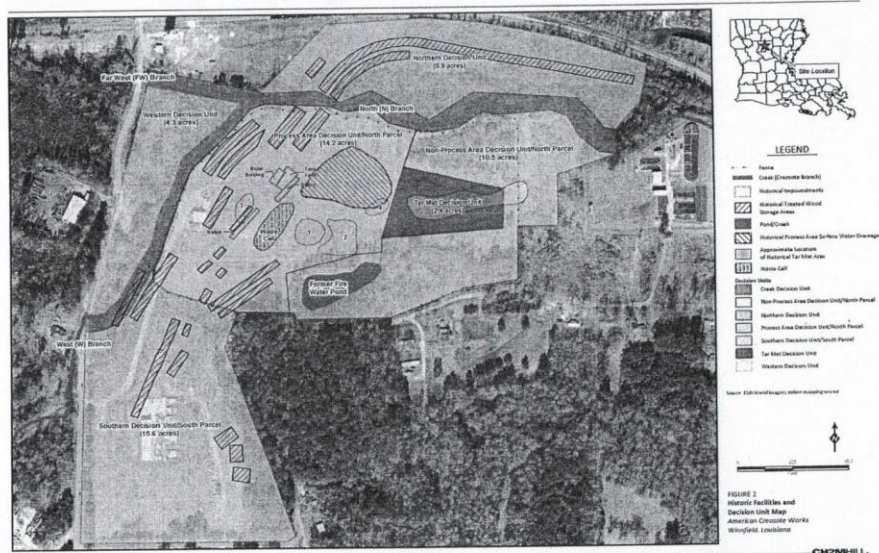
  
Allen Michael McCartney  
President  
Winn Parish Police Jury

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Exhibit I  
American Creosote Superfund Site



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Exhibit 2

A 13.93 Acre Tract of Land located in the SW/SW & in the NW/SW of Section 24, T11N-R03W, Winn Parish, Louisiana.

The 13.93 Acre Tract mentioned above is more particularly described as **COMMENCING** at a PK Nail found marking the SouthWest Corner of Section 24, T11N-R03W, Winn Parish, Louisiana, proceed North for a distance of 443.80 feet; then proceed East for a distance of 56.56 feet or to a Fence Corner Post, and for this as the POINT OF BEGINNING, from the P.O.B., proceed N 00 03'36" E or along the Fence Line for a distance of 681.06 feet or to a Fence Corner Post; then proceed N 53 03'53" E or along the Fence Line for a distance of 128.71 feet or to a Fence Corner Post; then proceed N 01 29'23" E or along the Fence Line for a distance of 127.63 feet or to a Fence Corner Post; then proceed N 27 42'32" E or along the Fence Line for a distance of 133.94 feet or to a Fence Corner Post; then proceed S 75 58'48" E or along the Fence Line for a distance of 59.55 feet or to a Fence Corner Post; then proceed N 37 34'41" E or along the Fence Line for a distance of 49.41 feet or to a Fence Corner Post; then proceed S 73 12'56" E or along the Fence Line for a distance of 363.97 feet or to a Fence Corner Post; then proceed S 39 56'34" W or along the Fence Line for a distance of 162.03 feet or to a Fence Corner Post; then proceed S 22 36'39" E or along the Fence Line for a distance of 670.31 feet or to a Fence Corner Post; then proceed S 21 07'55" E or along the Fence Line for a distance of 165.06 feet or to a Fence Corner Post; then proceed S 53 11'08" W or along the Fence Line for a distance of 46.49 feet or to a Fence Corner Post; then proceed N 89 57'13" W or along the Fence Line for a distance of 781.60 feet or back to the **POINT-OF-BEGINNING** of the 13.93 Acre Tract hereon described. All as set forth in that certain Boundary Line Survey & Description of a 13.93 Acre Tract of Land Located in the SW/SW & NW/SW of Section 24, T11N-R03W, Winn Parish Louisiana attached hereto and made a part hereof.

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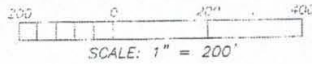
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**BOUNDARY LINE SURVEY & DESCRIPTION OF A 13.93 ACRE TRACT OF LAND LOCATED IN THE SW/SW & NW/SW OF SECTION 24, T11N-R03W, WINN PARISH LOUISIANA. AS WELL AS A 30' WIDE ACCESS SERVIDUTE**

DATE OF FIELD WORK COMPLETION:  
OCTOBER 14, 2016  
DATE OF SURVEY PLAN:  
JANUARY 08, 2017

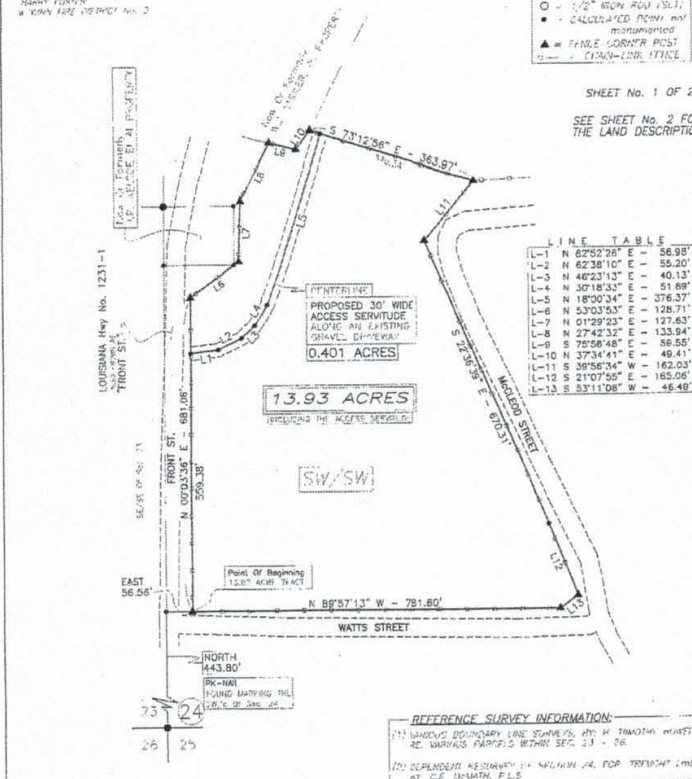
SURVEY REQUESTED BY:  
HARRY FORTON  
A KANA FORT FORTNEY INC. 2



**LEGEND:**  
○ = 1/2" IRON ROD (S/L)  
● = CALCULATED POINT NOT MEASURED  
▲ = FINAL CORNER POST  
— = OWNERS LINE (TICK)

SHEET No. 1 OF 2

SEE SHEET No. 2 FOR THE LAND DESCRIPTION



**GENERAL NOTES:**  
(1) THE LOCATIONS SHOWN ARE HORIZONTAL, AROUND THE SURVEYED AREA AND THE INTERIOR ARE SHOWN.  
(2) THE SURVEY RESEARCH OR INVESTIGATION OF THE POINT OF BEGINNING IS BASED ON THE SURVEYED AREA, LOCATED ENVIRONMENTAL MATTERS OR UNUSUAL SURVEYING SITUATIONS AND LOCATIONS TO PART OF THE SURVEYED AREA.  
(3) THE SMALLER SHOWN LINES SHOWN HEREON BEING THE ADJACENT TRACT RIGHT-OF-WAY.

**REFERENCE SURVEY INFORMATION:**  
(1) LANDS BOUNDARY LINE SURVEYED BY H. TIMOTHY HOWELL, S.L.S., RE. VARIOUS PARCELS WITHIN SEC. 23 - 26.  
(2) REPLACEMENT RESURVEYED BY WILLIAM J. FOR TRINITY, INC. CO. BY C.E. HOWELL, F.L.S.

**CERTIFICATION**  
I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF, THAT THIS PLAN REPRESENTS AN ACTUAL GRADED SURVEY PERFORMED UNDER MY SUPERVISION AND CONFORMS TO THE REQUIREMENTS FOR THE MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS AS FOUND IN LOUISIANA ADMINISTRATIVE CODE FOR A CLASS "D" SURVEY.



H. TIMOTHY HOWELL  
PROFESSIONAL LAND SURVEYOR  
P.O. BOX 166, WINN, LA 70481  
(504) 413-0300 or 622-6400  
thowell101@bellsouth.net

H. TIMOTHY HOWELL  
PROFESSIONAL LAND SURVEYOR  
LOUISIANA REG. NO. 4721

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Attachment J-3: 2017 Lease Agreement

STATE OF LOUISIANA

PARISH OF WINN

FILED  
CHESNEY CREEL BAXLEY  
CLERK OF DISTRICT COURT

2017 OCT -4 A 10:32

LEASE AGREEMENT

BE IT KNOWN that before the undersigned Notary Public and subscribing witnesses,  
on this the 15<sup>th</sup> day of September, 2017, personally came and appeared:

WINN PARISH POLICE JURY, represented herein by its duly authorized representative, Allen Michael McCartney, President, with mailing address of Post Office Box 951, Winnfield, Louisiana (hereinafter called "Landlord");

AND

WINN PARISH FIRE DISTRICT NO. 3, represented herein by its duly authorized representative, W. Bryan Price, President, a with mailing address of Post Office Box 70, Winnfield, Louisiana 71483 (hereinafter called "Tenant");

Who declared that they do hereby enter into the following Lease Agreement, to-wit:

SECTION 1: PREMISES

For and in consideration of the covenants, conditions, and agreements herein contained, Landlord does hereby lease unto Tenant and Tenant does hereby lease and rent from Landlord the following described premises, herein called "Premises" or "Demised Premises", situated in Winnfield, Winn Parish, Louisiana, being a tract of land containing 2.776 acres, more or less, along with a predial servitude of thirty (30) feet and being more particularly described on the plat attached hereto as Exhibit "A" (in globo), prepared by H. Timothy Howell, PLS No. 4721, dated July 25, 2017. The Premises shall be deemed to include both the land lying thereunder, together with any improvements and appurtenances thereto, without reservation.

SECTION 2: TERM and LEASE YEAR

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A. The original term of this Lease shall be for ninety-nine years (99) years, to commence on September 1, 2017, (the "Commencement Date") and will end at midnight on August 31, 2116, (the "Termination Date").

B. Landlord agrees that it will grant an extension of the lease for a period of an additional ninety-nine (99) years to begin on September 1, 2116, under the same terms as set forth in this lease agreement, if requested to do so.

### SECTION 3: TENANT'S SURRENDER OF PREMISES

A. Upon expiration of this Lease, or its earlier termination as herein provided, Tenant shall deliver and surrender possession of the Demised Premises to Landlord in as good condition and repair as the same shall be at the commencement of the term, ordinary wear and tear and damage by fire or the elements beyond Tenant's control excepted.

B. Tenant shall remove all of its property, not to include fixed property, repair all damage to Demised Premises caused by such removal and restore the Demised Premises to the condition in which they were prior to the installation of the articles so removed. Any property not so removed at the expiration of the term hereof, shall be deemed to have been abandoned by Tenant and maybe retained or disposed of by Landlord, as Landlord shall desire. Tenant's obligation to observe or perform this covenant shall survive the expiration of this Lease.

### SECTION 4: HOLDOVER

It Tenant shall remain in possession of all or any part of the Demised Premises after the expiration of the term of this Lease, then Tenant shall be deemed a Tenant of the Demised Premises on a month-to-month basis, cancelable upon thirty (30) days notice, at the same rental and subject to all of the terms and provisions hereof, except only as to the term of this Lease.

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#### SECTION 5: USE OF PREMISES

A. Tenant shall use the premises as a training center for Winn Parish Fire District No. 3, or any other use reasonably related to the operation of the fire protection district, during the term of this Lease.

B. Tenant shall not permit the Premises to be used for any unlawful purpose or in any way that will injure the reputation of the same or of the building of which they are a part or disturb or otherwise create a public nuisance. Tenant shall not change, modify or alter its use of the Premises, other as set forth in the preceding paragraph, without Landlord's prior written approval. Such Landlord's approval shall be at Landlord's sole consent and discretion. Tenant may not release or sublet the premises without Landlord's prior written approval.

#### SECTION 6: BASE RENT AND DEPOSIT

A. Tenant shall pay the Landlord, as Base Rent for the Demised Premises, **One Dollar (\$1.00) and no cents** per annum, payable in one installment, commencing August 1, 2017.

B. Such payments shall be made to Winn Parish Police Jury, P.O. Box 951, Winnfield, Louisiana 71483, or as same may be changed from time to time by Landlord.

C. It is understood and agreed by Landlord and Tenant that additional consideration has been received and will be received during the term of the lease by Landlord through improvements to fire protection services of Winn Parish, Louisiana, and is therefore not to be considered gratuitous on Landlord's behalf under the Louisiana Constitution and applicable Louisiana law.

#### SECTION 7: REAL ESTATE TAXES AND INSURANCE

A. **Real Estate Taxes:** The Tenant shall pay all applicable taxes on the Premises, if any be owed.

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**B. Insurance:** The Tenant shall be responsible for the cost of liability and fire insurance for the premises and shall also be responsible for liability insurance for the inside of any buildings of the premises for damages that may occur to third persons due to the fault of the Tenant. All fire insurance for the Tenant's contents and merchandise on the premises shall be obtained and paid for by Tenant. Tenant shall further secure insurance for any activities conducted by tenant on the premises that may occur to third persons due to the fault of tenant.

#### **SECTION 8: TENANT'S COMPLIANCE WITH LAW**

Tenant agrees, during the term of this Lease, to comply with all orders, rules, regulations and requirements of every kind and nature relating to the Premises, now or hereafter in force and effect, of the Federal, State, Municipal or other governmental authorities, applicable to the manner of Tenant's use and occupancy thereof.

#### **SECTION 9: MAINTENANCE**

**A.** Maintenance of any upgrades or improvements that the tenant requires or makes to the premises shall be at the expense of the tenant, and maintenance of any such improvements shall be the responsibility of the tenant. Landlord shall have no responsibility for maintenance of any portion of the leased premises, but shall solely be the responsibility of tenant.

**B.** Landlord shall not be liable for any non-structural damages done or occasioned nor for any damage arising from acts of negligence of tenants, co-tenants or other occupants of the same building or appurtenance constructed by tenant, or any owners or occupants of adjoining or contiguous property, unless such damage is occasioned by the negligence of the Landlord or its agents.

**C.** Tenant is responsible for all other maintenance of the Premises.

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D. Tenant shall be responsible for the replacement or repair of any damage to the premises caused by any act or negligence of Tenant, its employees, agents, invitees, subtenants, assignees or contractors.

E. Any fixed improvement made by the Tenant shall become a part of the premises and will become the property of the Landlord at the end of the term or any extension thereof.

#### **SECTION 10: ACCESS BY LANDLORD TO PREMISES**

Subject to Tenant's consent (which shall not be unreasonably withheld), Landlord shall have the right to enter the Premises to make inspections or provide necessary services. As provided by law, in the case of an emergency, Landlord may enter the Premises without Tenant's consent.

#### **SECTION 11: UTILITIES AND SERVICES**

Tenant shall be responsible for all utilities and services in connection with the Demised Premises.

#### **SECTION 12: INSURANCE AND INDEMNIFICATION**

A. Tenant agrees that, at its own cost and expense, it shall procure and continue in force, in the name of the Tenant, general liability insurance against any and all claims for injuries to persons or property occurring in, upon or about the Premises, including all damage from fire protection related activities and all such policies shall list Landlord as an Additional Insured. Such insurance at all times will be in the amount of not less than One Million Dollars combined single limit (covering bodily injury, liability, death and property damage). Such insurance shall be written by a company or companies authorized to engage in the business of general liability insurance in the State of Louisiana and Tenant shall deliver to the Landlord customary proof evidencing such paid-up insurance.

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B. The policies of insurance provided herein are to be provided by the Tenant, and should be for a period of not less than one (1) year, it being understood and agreed that thirty (30) days prior to the expiration of any policy of insurance the Tenant will deliver to the Landlord a certificate of insurance to take the place of the policy of the policy expiring, with further understand that should the Tenant fail to furnish such certificate of insurance as is provided in this Lease, and at the time herein provided, the Landlord may, after ten (10) days written notification to Tenant, obtain such insurance and the premiums on such insurance shall be deemed additional rental to be paid by the Tenant unto the Landlord upon demand.

#### **SECTION 13: DANGEROUS MATERIALS**

Tenant shall not keep or have on the Premises any article or thing of a dangerous, inflammable, or explosive character that might substantially increase the danger of fire on the Premises, or that might be considered hazardous by a responsible insurance company, unless the prior written consent of Landlord is obtained and proof of adequate insurance protection is provided by Tenant to Landlord. It is understood by Landlord, however that the purpose of the leased premises is for fire protection training and that such materials will be present and used on the premises. Any keeping of such materials not specifically related to fire protection activities is prohibited.

#### **SECTION 14: HAZARDOUS WASTE**

Tenant shall, upon request, submit reports to Landlord at such time, or from time to time, as Landlord or its Lender may reasonably request, stating in detail the nature of their operations and warranting to Landlord and its Lender that no portion of the Demised Premises have been or will be used for the use, generation, treatment, storage, or disposal of hazardous materials and that no such hazardous materials are present in or on the Demised Premises,

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except those for which Landlord or its Lender have given prior written approval and which are licensed and approved in accordance with all applicable laws and regulations and are in compliance with the terms of Landlord's or its Lender's written approval. This section shall not apply to fire protection training waste which is temporarily stored on the Demised Premises prior to its legal disposal.

#### SECTION 15: SIGNS

A. Landlord agrees that Tenant shall have the right, from time to time, at its own cost and expense, to erect and maintain signs advertising its activities on the exterior or curtilage of the Premises. Nevertheless, the Tenant covenants that any signs erected by it shall be of such a type and nature as to not detract from the sightly appearance of the remaining area.

#### SECTION 16: LIENS

A. If Tenant's actions and/or Tenant's failure to act shall cause any lien of any type or nature whatsoever (or any order for the payment of money) to be filed against the Premises, or any building or improvements thereon, the Tenant, immediately upon receipt of notice from Landlord or otherwise, shall cause the same to be cancelled and discharged of record by bond or another manner, at the expense of the Tenant and, further, Tenant shall also defend on behalf of the Landlord at the Tenant's sole cost and expense, any action, suit or proceeding which may be brought thereon for the enforcement of such lien, liens or orders, and the Tenant will pay any damage and satisfactorily discharge any judgment entered therein, and save harmless the Landlord from any claim, attorney fees or damages therefrom.

B. If any construction or other lien, or order for payment of money, shall be filed against the Premises, or on any building or improvements thereon, for any of the reasons provided in this section, and shall not be removed by the Tenant within thirty (30) days after notice given

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by the Landlord, the Landlord shall have the right to remove same by payment or otherwise, and all sums expended by the landlord for such removal, including counsel fees, shall be paid by the Tenant unto the Landlord upon demand, and shall be deemed to be additional rent due under this Lease.

#### SECTION 17: TENANT'S DEFAULT

A. Each of the following shall be deemed a default by the Tenant and a breach of this Lease:

- I. A failure to pay the rent herein reserved, or any part thereof, for a period of thirty (30) days after notice.
2. Failure in the performance of any other covenant or condition of this Lease on the part of the Tenant to be performed, for a period of sixty (60) days after notice.

B. In the event of any such default of Tenant as specified in the immediately preceding paragraphs hereof, Landlord may serve a written notice upon the Tenant that the Landlord elects to terminate this Lease upon a specified date not less than Thirty (30) days (excepting as subparagraph A(2) above, which shall be not less than fifteen (15) days after the date of the serving of such notice), and this Lease shall then expire on the date so specified as if that date had been originally fixed as the expiration date of the term herein granted. However, the right to terminate is subject to the Tenant's right to cure as set forth in this section.

C. In the event this Lease shall be terminated as hereinbefore provided, or by summary proceedings or otherwise, the Landlord, or its agents, servants, or representatives, may immediately or at any time thereafter, re-enter and resume possession of said Premises, or such part thereof, and remove all persons and property therefrom, either by summary

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dispossess proceedings or by a suitable action or proceeding at law, or by force or otherwise, without being liable for any damages therefor and without prejudicing Landlord's right to damages.

D. In the event this Lease shall be terminated as hereinbefore provided, or by summary proceedings or otherwise, or if the Premises or any part thereof shall be abandoned by the Tenant, Landlord may in its own behalf relet the whole or any portion of said Premises for any period equal to or greater than the remainder of the Lease term, and for a reasonable sum to any tenant which it may deem suitable and satisfactory, and for any use and purpose which Landlord may deem appropriate, and in connection with any such Lease, the Landlord may make such changes in the character of the improvements on the Premises.

E. Tenant shall, upon demand, pay all costs, damages, and expenses suffered by Landlord by reason of Tenant's defaults.

#### SECTION 18: LANDLORD'S RIGHT ON TERMINATION

In the event this Lease be terminated by summary proceedings, or otherwise as provided in the immediately preceding section, and whether or not the Premises shall have been abandoned and whether or not the Premises be relet, the Landlord shall be entitled to recover from the Tenant, and the Tenant shall pay to the Landlord, in addition to any other damages becoming due hereunder, the following:

An amount equal to the amount of all rents and additional rents reserved under this Lease, less the net rent, if any, collected by the Landlord on reletting the Premises, which shall be due and payable by the Tenant to the Landlord on the several days on which the rent and additional rent reserved in this Lease would have become due and payable; that is to say, upon each of such days, the Tenant shall pay to the Landlord the amount of deficiency then existing.

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Notwithstanding any of the terms and provisions contained in this Lease to the contrary, Landlord and Tenant shall each have the duty and obligation to mitigate, in every reasonable manner, any and all damages that may or shall be caused or suffered by virtue of the other's defaults under, or violation of, any of the terms and provisions of this Lease. Landlord and Tenant hereby acknowledge and agree that in the event Landlord retakes possession.

#### **SECTION 19: CUMULATIVE RIGHTS**

The rights of the parties under this Lease are cumulative, and shall not be construed as exclusive unless otherwise required by law.

#### **SECTION 20: GOVERNING LAWS**

This Lease shall be construed in accordance with the laws of the State of Louisiana.

#### **SECTION 21: ASSIGNMENT and SUBLETTING**

Tenant may sub-lease to an entity providing or conduction similar activities as Tenant with prior written approval of Landlord. Any assignment or subletting, even with the consent of Landlord, shall not relieve Tenant from liability for payment of rent or other sums herein provided or from the obligation to keep and be bound by the term, conditions and covenants of this Lease. The acceptance of rent from any other person shall not be deemed to be a waiver of any of the provisions of this Lease or to be a consent to the assignment of this Lease or subletting of the Premises.

#### **SECTION 22: NOTICES**

The notice address of Landlord and Tenant shall be as first set forth above, by nationally recognized overnight delivery service, or registered or certified mail, return receipt requested, or to such other address as either party shall have designated by notice to the other. The time of the rendition of such shall be when same is delivered unless delivery is refused or cannot be

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made, in which event, the date of deposit in an official United States Post Office, postage prepared or of attempted delivery shall be the date of notice.

#### **SECTION 23: IMMEDIATE ACCESS**

Tenant shall have the right to enter the Demised Premises for the purpose of doing all work necessary for the creation of a fire training area. This right commences with the signing of this agreement.

#### **SECTION 24: ENTIRE AGREEMENT/AMENDMENT**

The lease Agreement contains the entire agreement of the parties and there are no other promises or conditions in any other agreement whether oral or written. This lease may be modified or amended in writing.

#### **SECTION 25: SEVERABILITY**

If any portion of this Lease shall be held to be invalid or unenforceable for any reason, the remaining provisions shall continue to be valid and enforceable. If a court finds that any provision of this Lease is invalid or unenforceable, but that by limiting such provision, it would become valid and enforceable, then such provision shall be deemed to be written, construed, and enforced as so limited.

#### **SECTION 26: WAIVER**

The failure of either party to enforce any provisions of this Lease shall not be construed as a waiver or limitation of that party's right to subsequently enforce and complete strict compliance with every provision of this Lease.

#### **SECTION 27: FORCE MAJEURE**

Landlord and Tenant shall be excused for the period of any delay in the performance of any obligations hereunder when prevented from so doing by cause or caused beyond

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Landlord's or Tenant's control which shall include, without limitation, all labor disputes, civil commotion, war, warlike operations, invasion, rebellion, hostilities, military or usurped power, sabotage, governmental regulations of controls, fire or other casualty, inability to obtain any material, services or through acts of God.

#### SECTION 28: MISCELLANEOUS

**A. Captions:** Any headings preceding the text of the several paragraphs and subparagraphs hereof are inserted solely for convenience of reference and shall not constitute a part of this Lease, nor shall they affect its meaning, construction or effect.

**B. Parties Bound:** This Lease shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, executors, administrators, legal representatives, successors, and assigns where permitted by this Lease.

**DONE AND PASSED** at my office in said Parish of Winn, Louisiana, in the presence of the undersigned competent witnesses, on this the 15<sup>th</sup> day of September, 2017.

**LANDLORD:**

WINN PARISH POLICE JURY

By: Allen Michael McCartney  
ALLEN MICHAEL MCCARTNEY,  
President

Witness

Witness

Chesney Crad Baxley  
Notary Public

Chesney Crad Baxley #145927

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STATE OF LOUISIANA

PARISH OF WINN

**DONE AND PASSED** at my office in said Parish of Winn, Louisiana, in the presence of the undersigned competent witnesses, on this the 15<sup>th</sup> day of September, 2017.

TENANT:

WINN PARISH FIRE DISTRICT 3

By: [Signature]  
W. BRYAN PRICE,  
President

[Signature]  
Witness

[Signature]  
Witness

[Signature]  
Notary Public  
Chesney Creel Buxley #145927

STATE OF LOUISIANA  
Parish of Winn  
I hereby certify that the foregoing pages contain a true copy of the notary record as same appears in the office of the notary public in the Parish of Winn, Louisiana, and that the same are in conformity with the original record of the same as the same are on file in the office of the notary public in the Parish of Winn, Louisiana.  
Notary Public  
Chesney Creel Buxley

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